WORLDS OF TOMORROW

NOVEMBER 1966
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REPORT ON THE SLOW FREEZE
by R. C. W. Ettinger

The Master Spy of Space!
CROWN OF STARS
by Lin Carter

A new "inside look" at science fiction
by SAM MOSKOWITZ

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By Max Shulman

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WORLDS OF TOMORROW®

NOVEMBER 1966
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ALL NEW STORIES

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THE WORLD OF TODAY

Since today (as we write this) is the 16th of June, we take this opportunity to wish you all a Happy Bloomsday.

Joyceans, of course, will recognize the occasion: It is on the 16th of June, one particular 16th of June early in this century, that the entire action of James Joyce's novel, *Ulysses*, takes place. Today the Joyceans of the world are celebrating the occasion by erecting a new monument on Joyce's grave in Switzerland. But there is a more permanent monument available on a larger scale: the writing of the past half-century in the English language bears a permanent mark impressed by James Joyce. In subject matter, the present freedom of modern writers to discuss human behavior in even its "tabu" forms of sexuality was earned by *Ulysses*. Banned for years, it was the subject of a court struggle that resulted in the historic decision that a work of literature must be judged in its entirety. In technique the effects of *Ulysses* are even more strongly felt. Joyce did not invent "portmanteau" words, but he certainly made them a part of the vocabulary of narrative writing as even Lewis Carroll had failed to do. And Molly Bloom's cadenza at the end of the book was the attempt of a powerful mind to describe the chaotic, nonsequential and often confusing workings of another mind. Molly's stream of consciousness is still studied by fledgling psychologists . . . and still stands the scrutiny of their professors.

Explications of Joyce are endless; but there is a new one that has a special interest for us because it is the brain-child of our staffer, Judy-Lynn Benjamin. Called *The Celtic Bull* and published by the University of Tulsa as the first of a new monograph series, it will be out by the time you read this. Miss Benjamin is editor-in-chief of the book; her associate editors are Joanne Kolbe and Maryann Nichols; and the contributors to the book include all three of the editors, and half a dozen more. . . .

As you will have noticed, *Worlds of Tomorrow* has gone over to a quarterly publishing schedule. The schedule juggling leaves us with one monthly (*If*), one bi-monthly (*Galaxy*) and the present magazine, *Worlds of Tomorrow*, as a quarterly . . . but regard nothing as settled; the reason for the juggling act is that we are trying to fit another magazine in.

What will the other magazine be? Well, we're not prepared to say just yet, but we've been amusing ourselves by telling our regular contributors that, yes, it will be a science-fiction magazine but, no, none of them will be writing for it. . . .

Come back next issue; we'll tell you all about it then!

—THE EDITOR

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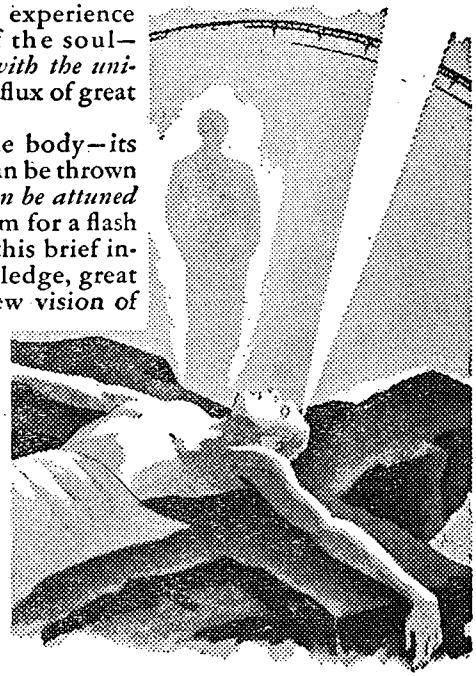
A SPLIT SECOND IN ETERNITY

The Ancients Called It COSMIC CONSCIOUSNESS

Must man die to release his *inner consciousness?* Can we experience *momentary flights* of the soul—that is, become *one with the universe* and receive an influx of great understanding?

The shackles of the body—its earthly limitations—can be thrown off and *man's mind can be attuned* to the Infinite Wisdom for a flash of a second. During this brief interval intuitive knowledge, great inspiration, and a new vision of our life's mission are had. Some call this great experience a psychic phenomenon. But the ancients knew it and taught it as *Cosmic Consciousness*—the merging of man's mind with the Universal Intelligence.



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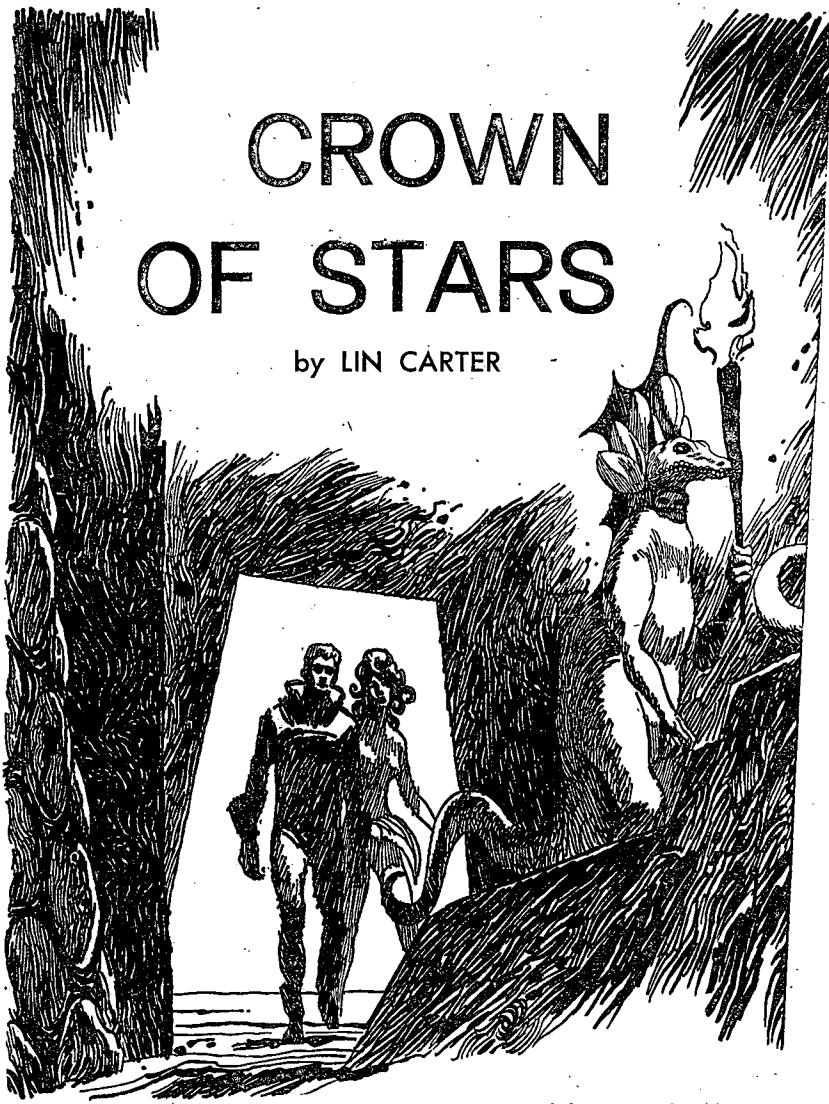
CROWN OF STARS

by LIN CARTER



Illustrated by GAUGHAN

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James Bond and Sherlock Holmes, move over! In an asteroid castle off Astarte, your master appears!

I

HAUTLEY QUICKSILVER, the most celebrated Confidential Agent in all the Near Stars, had a castle of pink quartz on Carvel in the Chain of Astarte. There he lived alone with his quaint hobbies, his curious pets, and his extraordinary collection of hand weapons; there were sixteen hundred varieties represented, and with each he made certain to acquire a thorough professional competency.

Quicksilver's castle clung to a sheer crag of green coral, rising from a sea of heavy opal smoke. It was a lovely thing, under a tea-rose sky,

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with Astarte glowing redly on the dim horizon.

The horizon looked more distant than it was. Carvel was a terraformed worldlet with a diameter of forty-nine km.; but a permanent magnetic field distorted the atmospheric molecules into a gigantic lens, creating the illusion of vast distances. The coral cliff to which the pink castle adhered was one of a scattered forest of similar green monoliths, even as Carvel was but a minor gem in the complex necklace of asteroids that circled the planetless, dark red star. Quicksilver's versicle on the subject was:

Hardest of all: to find
One needle in a mountain of its kind.

Professionally, of course, Quicksilver would suffer if he were impossible to find. Hence he was "at home" to visitors on alternate Zandays. They would phone him, on a very special wavelength whose measures were published every second Oomday in the personal columns of the *Centauri Standard Times*; and if their business sounded sufficiently promising, Quicksilver would switch on the beacon, and his potential clients would be guided, blind, through the jungle of whirling rocks that he always referred to as his castle's "moat."

This Zanday his visitor was a soft little mouse of a man with a vapid face, pale eyes of contrasting colors, salmon hair and eyelids tattooed with the green ink caste mark of a Validian Scholar. In a neutral voice, only slightly blurred with nervousness or tension, he introduced himself as the Learned Pawel Spiro, Resident Locutioner in Chaiteen Archeology at the Boghazy-the-Great Museum, Tavory, Alcazar III. He spoke rapidly, soft, ingratiatingly, not once lifting his eyes to Quicksilver after the first keen, all-encompassing appraisal.

"The Museum is interested in retaining you, Ser Hautley, on a mission of extreme delicacy. That is, to appropriate the archaic jeweled headpiece of the prehistoric Cavern-Kings of Chait (Thoin IV, Derghiz Cluster). We understand your fee is considerable; you will find our generosity in keeping. However, for any expenses above and beyond reasonable limits, the Department requests an itemized bill of expenditures. We would like delivery of the cult-object within ninety days of the date of our contract."

Quicksilver watched the slight, nervous movements of Pawel Spiro's soft hands with lazy, impassive and mirror-bright eyes. The Confidential Agent was a lean, lithe young man of seventy-six, clothed from throat to wrist and heel in tight black satin. His face was mahogany, ascetic, with high cheekbones and a broad forehead denoting astonishing intellectual capacity. His hair, falling in meticulous locks over his brow, was pewter-gray. A whimsical light flashed in his oblique, mirror eyes (from which affectation, as well as from his mercurial temperament, he derived his surname).

"This headpiece, popularly called

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'The Crown of Stars' is I believe venerated by a fanatic cult, is it not, Learned Spiro?"

Pawel Spiro cleared his throat with a slight, glottal cough.

"Er, ah, that is correct. It is the cult-object of the Neochait Priesthood, fourteenth-generation descendants of the original settlers, who have built a form of ancestor worship about the mysterious Cavern-Kings. These Cavern-Kings are an extinct race of highly intelligent lizards of prespace technology. Their curious architectural monuments — which remain, to this day, among the archeological enigmas of the Cluster — are virtually all that remains of their handiwork."

"Except the Crown," Quicksilver drawled. Pawel Spiro nodded.

"Except the Crown, yes. Barring the ruins, it is the only known artifact of this dead race."

"Worth a fortune, I venture?"

Pawel Spiro nodded again, nervously.

"Beyond price, Ser Hautley. Prized not so much for its intrinsic worth as for its historical value. Still, it is reputed a lovely bit of jewelry. Open-scrolled goldwork . . . rather in the High Phriote style . . . set with one hundred fifty-seven precious and semi-precious stones . . . among them are the only known specimens of thirteen otherwise mythical varieties of gemstone."

Quicksilver removed a slim green tube from a bloodwood case on the desk before him, placed it between his thin lips (without offering one to his visitor, curiously) and meditated unblinkingly on the anonymous face opposite. An aromatic vapor permeated the tower chamber.

There was a silence.

Pawel Spiro coughed discreetly. From within his singlet he plucked forth a plasticine card and proffered it to Quicksilver.

"You will find here a complete precis of all available information concerning this commission."

Quicksilver accepted the card with a brown, immaculate hand. The tiny canary-yellow dragon on Quicksilver's shoulder hissed like a viper, gold eyes sparking viciously. Pawel Spiro withdrew his hand hastily.

"For what reason does the Museum wish me to appropriate the Crown of Stars?" Quicksilver inhaled the pungent vapor lazily. "One could hardly display a stolen artifact openly."

"True enough. However, we shall see to it that unofficial word of our — ah — new acquisition circulates through the world of archeology. Boghazy-the-Great will gain higher status among similar institutions. Our monograph series, particularly when related to Chaiteen archeology, will acquire greater prestige and attract more respectful attention. And, after the fifteen-year period demanded by the Carina-Cygnus Criminal Code, Section 12, sub-paragraph *b*, 'Statute of Limitations' has expired, we may then openly display the cult-object without fear of reprisal."

Quicksilver stood up.

"Where may I contact you?"

"Imperial House, Chitterling, Vassily II. I am staying under the name of Dr. Smothly."

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"You will hear from me within twenty-seven hours," Quicksilver said, ushering his visitor out. Returning to the room he detached a minicamera from the ornamental border of his desk and swiftly developed nine of the prints extracted from the device. He then dialed Boghazy-the-Great, asking for the Chancellor of Derghiz Archeology Department. A portly, pink-faced Cartouchan with enormous ultramarine mustachios, robed in orthodox blue, inquired his business.

"Very Learned, I am Thomas Jefferson Pouchier, Senior Staffmember of *Star* magazine. We contemplate a feature article on the fine work the Museum is doing in Carina-Cygnus prehistory and neoculture. I am assigned to a few brief paragraphs concerning an underling of yours, the Learned Pawel Spiro."

"Yes, yes, fine man. Chaiteen archeology a dead end, of course. My own specialty, now — the famous Monolith-Builders of Delta Carina XI —"

"My superior, Full Editor Lord Daughtner Rohm, is preparing the central section, dealing with your brilliant achievements," Quicksilver interposed smoothly. "But I have a choice of several pictures of the Learned Spiro — simple two-color prints, of course, unlike the 3-D full-spectrum center-spread we plan for yourself. Tell me, are any of these a truly good likeness of the Learned?" He fanned out the prints. The Chancellor nodded.

"Very good likenesses, all. That one of Spiro rubbing his nose, very characteristic pose. But tell me, Staffman, the section on myself —"

"Lord Daughtner will shortly contact you personally, Very Learned. Another question, if I may. Is the Learned at the Museum now, or where can I contact him?"

"On his sabbatical at present. For several months; due back the 15th of Jones as I recall. My secretary could —"

"Of course. Any idea where he went?"

The Chancellor puffed out his cheeks. "The Hub Stars. Gesualdo V. Probably find him at the Empress Pavalia Library."

Quicksilver thanked him, rang off, and phoned the Library. It would take an hour for the call to go through, the operator informed him. He gave her his unlisted number and asked that he be called as soon as connections were established.

II

Over a quick lunch of brisket of sea serpent and Arcadian mint-jelly he skimmed swiftly through his files.

Eleven attempts had been made to purchase the Crown, from museums mostly, but two from planetary governments. King Oswal the Pious of Altair XII had bid up to seven million. The royal collection was enormously famous. He had been curtly refused. Thirty-nine serious attempts to steal the Crown had thus far been perpetrated. All were foiled, and the would-be thieves executed by the Neochait Priesthood. All, that is, except the Master-Burglar of Capitan, the notorious Dugan

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Motley, now in retirement. Quicksilver poured a dollop of *creme de croix* '46 into a cut-glass goblet and dialed Information. Motley was unlisted in any of the three galactic arms. His lifelong confederate, Shpern Hufferd, however, still resided at Thieves' Haven, the outlaw planet in the Gap, but did not answer. Quicksilver resolved to pay him a call, but before he finished his *creme de croix* an incoming call flashed above the phone.

It was another potential client, a tall, saturnine aristocrat who waved off Quicksilver's protests that he was contemplating a commission already with a clipped offer of one million munits. Quicksilver guided him down with the beacon.

This second visitor, who introduced himself as His Dignity Heveret Twelvth, Proprietor of Canopus, was as slim as a dancing-master, clad in fawn-colored velvet with a great emerald trembling like a drop of green fire in his left earlobe. Carmine hair, arranged in exquisite locks, foamed over his high peaked collar of snow-cat fur. His eyes, dyed vermillion, flashed with sardonic humor. In a soft, purring voice, His Dignity came directly to the point.

"Here is our certified check for one million monetary units, drawn on the Royal Bank of Orion. Fetch us the jeweled crown of the Cavern-Kings of the planet Chait. It is the fourth planet of the star Thoin in the Derghiz Cluster of Central Sagittarius. Here is a complete dossier of relevant information. The Crown is to be delivered to a post-office box registered in the name of H. Veret in the Chantilly Port Post Office. Here is the key. When the Crown has been so delivered, place an entry in the *Chantilly Port Herald* saying simply: 'Done. Q.' The Royal Bank of Orion will then be instructed to clear the check."

His Dignity lifted a pounce-box to his nostrils and sniffed delicately. Quicksilver noncommittally shuffled through the folder and then regarded the Proprietor quizzically.

"I was not aware that your Dignity was a collector of rare antiquities," he commented.

Heveret XII smiled thinly. "Our motives cannot conceivably affect our business arrangement. Come, Ser Hautley. Let us thumb-print the contract and be off."

"I must have leisure to check over this information. Where can I contact Your Dignity?"

"We are extremely busy, Ser Hautley. This matter must be decided now. There can be no question of fee — two million, if you insist."

Firmly but politely Quicksilver declined to commit his services prior to a full investigation of the task, extracted a reluctant phone number and saw his blue-blooded visitor out, promising to give a definite answer within twenty-seven hours.

No sooner had the tall noble left than the phone flashed. His call to the Library was now connected. Quicksilver spoke to a prim woman of indeterminate age, modestly attired in a black spray-on with untinted hair of vague off-gray.

"The Learned Pawel Spiro has been in residence for some months,

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engaged on research for a monograph on folk customs of the Alphayne III Owl People. Of course I am sure he has not left the planet — I see him every day!"

Quicksilver thanked the Librarian-General and rang off. He stroked the tiny yellow dragon with a long forefinger, thoughtfully, while it purred throatily.

Pawel Spiro, it would seem, was a fake. But a good one. Very good — professional class. Now, what about Heveret XII? He phoned the Royal Archives at Barvory on Canopus II. The Third Under-Archivist, a shriveled gnome of a man with a silvery spike of beard and snapping green eyes testily demanded his business. Quicksilver held up a photographic enlargement of a fingerprint he had taken from the polished panel His Dignity had touched on his way out of the castle.

"My name is Feuvel Coradayne. I collect objects previously belonging to royalty. I have recently been offered a crystal goblet from which your Lord, His Dignity Hervert Twelfth, is said to have drunk. I wish to check the validity of this association. Can you check your files and inform me if this print matches the right index finger of His Dignity?"

The Third Under-Archivist grumbled a bit, but Quicksilver mollified him with swift, easy words. He vanished from the screen, reappearing moments later to signify approval. Heveret XII, then, was legitimate, if Pawel Spiro was not. Interesting.

His cruiser was ready for departure. Quicksilver opened his cosmetic kit, preparing to change his appearance for the visit to Dugan Motley's old colleague, Shpern Hufferd, when the phone flashed again — this time on an official government frequency. It was a police call.

Quicksilver accepted it. He had nothing to fear from any law enforcement agency in the civilized galaxy. An accredited member of the Thieves' Guild, operating under a Charter from the Alphard Anarchate, his business was fully legal. Since the Anarchate had been diplomatically recognized by the Imperial Commonwealth of Worlds back during the Comalte Crisis, his Charter was recognized galactically. (The Alphard Anarchate, of course, was the famous system in which criminality was legal and honesty against the law. An interesting culture in many ways.) He switched the phone on, and the screen filled with an admirable specimen of femininity.

"Senior Inquiry Specialist Barsine Torsche, officially requesting permission to land and deliver a commission from the Carina Intelligence Depot. Priority prime-4."

Quicksilver, with difficulty, repressed an expletive. He had worked with Senior Inquiry Specialist Torsche before and disliked her. She was a decorative creature, one could not deny, with magnolia-white skin, thick hair of metallic indigo and eyes and lips of warm pink. But she was obviously madly in love with him, and this dampened the ardor he might otherwise have felt. By temperament he was opposed to surrender and attracted by rebuttal (which

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implied eventual conquest). As he put it in a versicle:

Dearer to me: the prize I take,
Than gifts that other people make.

"I am otherwise engaged," he said coldly.

"Hi, Haut, is that you? Switch on your vision, will you?"

He complied and viewed her stonily. "I am at the moment considering two commissions, Inquiry Specialist Torsche."

She shaped her warm pink mouth into a *moue*. "Oh, aren't we hoity-toity, Hautley! But this one will interest you. The Lord Commissioner of Internal Security himself —"

"I am busy —"

"You can't refuse a commission from a Cabinet Commissioner! Don't you know Article Nineteen of your Charter?"

He ground his teeth. But she was right. "Oh, I suppose so," he said bitterly. "What is it the Lord High Whozis wants me to do?" A sarcastic grin creased his thin lips. "Steal the jeweled Crown of Stars from the Crypts of the Cavern-Kings of Chait?"

Her lips formed another *moue* —this time of genuine astonishment. "I . . . I really think you are a telepath, as your envious colleagues claim. *How on earth did you know?*"

III

Quicksilver guided Barsine Torsche down and greeted her curtly. He hoped his habit of facial impassivity had prevented any sign of his own astonishment from showing. Seemingly it had, for she made no reference to it.

"I don't know how you stumbled onto it, Haut, but the Commissioner has picked you for exactly that assignment. You don't have an ear planted in the Depot offices, do you?"

"I do not, Specialist. Nor can I accept your commission," he rapped, coolly. "As I told you, I have already accepted —"

"Hautley, your Charter —"

"I have a legal obligation to my principal. I could be sued for a fortune and have my scintillant Charter revoked!" Quicksilver, grasping at straws, pretended indignation.

She regarded him dubiously.

"Have you actually thumb-printed a contract, Hautley? You didn't tell me that."

"No. I wanted to find out why the Imperial Government wants this whatzis — Crown of Stars."

Her watermelon-pink lips firmed, and her stubborn little chin lifted.

"I'll have to see the contract, you know. And I certainly can't divulge any classified information, if you are legally bound to another case. Perhaps your client could be persuaded to waive, allowing you to handle ours?"

Hautley thought swiftly, covering his momentary silence by pouring a goblet of *creme de croix* for himself and Barsine. She refused hers, whereupon he opened the bloodwood case and selected a slim green cylinder. He could not tell Barsine the truth, *i.e.*, that he suspected he could abscond with the cult-object within a day or two, as he could not

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reveal to her that others were after it as well as the Imperial Government. Were he to do so, the Depot might become alarmed and enforce their wishes upon him. As ever, Quicksilver preferred to walk his own path. As one of his versicles put it:

Freedom: to seek my star,
Unheeding who may seek to guide, or bar.

"I doubt my principal could be persuaded to delay. Royalty, you know," he said.

"I must see your contract," Barsine Torsche insisted. Hautley sighed and snapped in two the unlit cylinder between his fingers. From this particular cigaril a jet of lime-green smoke erupted. The young woman collapsed instantly on the wall-to-wall rug of deep-piled *ormthak* fur.

Hautley Quicksilver selected a blank contract from his desk. Inserting it into the typovox he rapidly dictated eleven sentences, snapped it from the machine and affixed his thumb-print. Luckily, from the impressions Heveret XII had left on the polished door-plate, he could select a flawlessly perfect print. He photographed it, ripped the negative from the camera and duplicated it on a plastic cube in nitrate of impervium. He drew a bulb of acid from his waist pouch, squirted the translucent block with a corrosive mist and, instants later, inked an excellent thumbprint on the contract with the cube. The vapor had eaten away the plastic from around the microscopic lines of impervium nitrate. The mission described in the contract was a vital political assassination. He then bathed Barsine Torsche, whom he lifted to a reclining chair, in a jet of counteractive gas.

She awoke, unaware of any time-lapse, to examine the forged contract. A tiny line of exasperation formed between her perfect indigo brows.

"You're right, Haut. You daren't break *this*. Old XII sounds desperate, and from what I know of his temper, I doubt if the full Cabinet could dissuade him. Oh, scintillance! The Commissioner will be frothing . . . How long will it take you to vaporize the scut?"

"A solid month, I have no doubt. The Proprietor's enemy seems to anticipate vaporization. His ulna has been removed from one forearm. An aluminum tube replaces it, packed with molecule-sized transistors and microprinted circuits, projecting an impervious shell of force about his body, opaque to any material object and, in fact, transparent only to gravity, moderate heat and light. Air, within his self-imposed prison, is manufactured by a tiny recycling plant in his left tibia, also a tube of aluminum."

"Clever devil. How do you plan to scrag him?"

"Don't know. Studying the problem now . . . rather busy, as I said, Barsine . . ."

She sighed. "I can take a hint, Haut. See you around."

Barsine paused at the door: "If you're fooling me, Quicksilver —!

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The Commissioner is really interested in this case. Carina-Cygnus won't be big enough to hold you, if he discovers —"

His mercury-colored eyes opened with a gaze of injured innocence.

"Barsine!"

"Oh, all right. 'By — got to buzz."

As soon as her ship lifted anti-gravs and reascended into the stratosphere, Quicksilver flashed into action. He entered his cruiser — the fastest thing in space — and launched from Carvel, threading his way through the whirling maze of minor asteroids with the skill of familiarity and the deft touch of a master pilot.

Thieves' Haven, the outlaw planet, lay some seventeen thousand light-years towards the Hub, a lonely, sunless world swimming in the Gap. The Gap was the immense black rift that separated the outer Carina-Cygnus Arm from the inner Sagittarius Arm of the Galaxy. Quicksilver pointed the needle prow of his lean, rakish craft Hubwards and transposed his ship into pseudospace.

With a bone-shaking subsonic whine the Bettleheim-Ortleigh-Robton Drive engines engaged, creating a magnetic field around the slim craft in the thousand-billion-gauss range — a magnetic field of such stupendous magnitude that the very fabric of space itself was bent until it "snapped", forming a bubble of bent three-dimensional space around the sleek cruiser. Within this artificial little private universe, light was still the limiting velocity of matter — but the relative acceleration

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of photonic energy was now several million times higher.

Hurtling towards the criminal planet at several thousand light-speeds, Quicksilver snapped the ship on automatic and relaxed. It would be necessary to assume a disguise: far-too many outlaws at the Haven would recognize Quicksilver at a glance. If, as was highly possible, the scofflaw class was involved in this three-way struggle for the Crown of Stars, he saw no motive for advertising his active participation in the contest until it was advantageous to do so. He removed the tiny canary-yellow dragon from its perch on his shoulder, slipped it in an iridium-wire cage, gave it a handful of iron pyrites to eat and sat down at his cosmetic table.

Staring at his several reflections in the multi-angle mirror, he began swiftly to alter his appearance beyond recognition. A lightly radioactive hypospray, pressed against the third intersticial suture of his skull, injected a minute stimulus to his cyno-pituitary, which, within the hour, would bleach his skin color to a strawberry red. A quick chemical spray violently agitated the hair follicles of his scalp. He watched as the pewter gray of his hair grew satiny black, darkling as the tide of color crept up from the roots.

IV

As he worked, his mind raced furiously. There forces, seemingly independent of each other, strove for possession of the Chaiteen cult-object. *Why?*

Granted, the Crown of Stars was fabulously rare, worth an immense fortune, either for its intrinsic worth or its historical value, but this hardly seemed reason enough for the sudden interest people from widely varied areas of expertise were displaying it in.

A scholar, ostensibly working on the behalf of a galactically famous museum. A monarch, motives unrevealed. An intelligence agent, set into action by a member of the Emperor's Cabinet. What did these three have in common? Desire for wealth — power — knowledge? No, it was something more. A small vertical crease formed between Quicksilver's ebon brows.

One of the three was a phony.

Although Pawel Spiro's story hung together, and his disguise was clever enough to fool the camera — and his professional superior — the real Pawel Spiro was busily at work in the center of the galaxy on anthropo-archeological research, while a fake Pawel Spiro, half a galaxy away, was holed up in a glossy tourist hotel awaiting word from the galaxy's ace Confidential Agent.

Who was this pseudo-Spiro? What did he want from the Crown — and, more important, whom did he represent?

And *was* Pawel Spiro the only fake, among the three clients? True, the fingerprints of Heveret XII matched those on official Canopan records, but that was only proof "to a degree." Quicksilver smiled thinly. Without greatly taxing his imagination, he could recall eight ways of faking fingerprints, to wit:

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1. Invisible fingertip sheaths, with raised prints.

2. Skin graft, or entire digital grafts.

3. Homosculpture.

4. Bribery of the Archives official Quicksilver had interviewed.

5. Forgery of fake records, and their replacement in the Archives of Canopus.

6. Dialic biostasism.

7. Kidnapping of the interviewed official, and planting a coached replacement for the interview; or narcotic persuasion or hypnotic implanting of false information with the true Archivist.

8. Time-prolypse, by means of an Anchidean protomorph, or laboratory duplicate thereof.

He sprayed his face with astringent vapor from a pressure bulb, creasing his facial flesh with a network of semi-permanent wrinkles, adding apparent physical age. A touch of biostatic plasm deftly applied to nose, brow-ridge and jaw altered his profile subtly yet surely, and the synthetic yet semi-living pseudoflesh would stand up to anything but a microscopic analysis.

Quicksilver stripped off his satin tights and changed to a looser singlet and hose of contrasting irridescents. Slight pads sewn in the garment at shoulder and spine made him appear a little stooped and lent a false slope to his brawny shoulders. The man who now looked back from the mirror resembled Quicksilver only in the mirror-bright eyes his pride and inborn love of tempting danger made him retain untampered-with. About his waist went a "business" belt, and the singlet itself contained various interesting gadgetry that only a detailed search, or examination by an expert tailor, would discover.

The automatic pilot chimed softly. Quicksilver put away his cosmeticry and stepped to the glowing control console. He brought the ship into normal space again by relaxing the magnetic mega-gauss field and cruised towards Thieves' Haven on planetary drive.

Landing at the planet's only field, he consulted his timepiece.

Less than two hours had passed since he bade farewell to Pawel Spiro. Before the twenty-seven hours were up, he must: 1, locate Shpern Hufferd and extract from him the current location and pseudonym of the Master-Burglar of Capitan; 2, interview the Master-Burglar and extract from him a description of the protective measures used by the Neochaiteen fanatics to guard their treasure and the means by which Dugan Motley had managed to escape from Chait unharmed; 3, decide, of the three potential clients, which to accept his commission from; and, 4, if possible, find out who or what was behind Pawel Spiro.

Quicksilver landed neatly, berthed his ship in a subterranean dock, and gained the upper levels, taking a glidewalk into the capital (and only) city of Thieves' Haven, Dioga.

It was a fantastic metropolis, this king-city of crime. Fabulous avenues lined with palaces of wine and gourmet delights, as well as the oth-

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er fleshly pleasures, including thirteen totally new and original vices specifically invented by galactically famed psychologists, chemists and anatomists for the Haven, retained a generation before at incredible fees. Glitteringly facaded gaming-houses, where eleven thousand four hundred and six different methods for parting a man and his munits could be found. Bizarre establishments where, for princely fees, one could titillate the most jaded palate by torturing a nude girl to death, indulging in narcotic boilermakers compounded of expertly blended and homogenized varieties of widely differing drugs injected directly into the brain, or spend a quiet meditative hour as the galaxy's most celebrated pornographic, necrophilic and homophagic library and film-collection exhausted their repertoire for your amusement.

Against the velvet backdrop of a night never broken by a morning sun, fantastic illusion-displays challenged the stars with multicolored advertising spectacles:

AH FONG'S DE LUXE DREAMERY
Murder ! Rape ! Torture ! Suicide !
Mass Atrocity
"Have Your Kicks in the Finest
Man-Made Synthetic
Dreams and Illusions"

PEGLEG FAUNTLEROY PRESENTS "MANHUNT"!
Track Down and Slay Your Enemies!
Satisfaction Guaranteed!
Risk Eliminated!
Why Pay a Psychosurgeon?
Our Androids Guaranteed to Simulate Mom, Dad or Anyone Else You Hate . . . So Work Off Your Frustrations the Fauntleroy Way!
(Genuine Blood Supplied by Hemoglobin Associates, Ltd.)

ONE-EYE GROGAN'S HOUSE OF TEN THOUSAND GAMES
"Lose Your Shirt in Surroundings of Imperial Splendor!"

MADAME FAFH'S PALACE OF JOY
Women of a Million
Worlds . . . Also
Boys, Men, Neuters, Albino
Hermaphrodites
And Specially Trained Birds

Tuning his wristphone to the planetary wavelength, Quicksilver called Central and obtained Shpern Hufferd's address. The former associate of the Master-Burglar now resided in a decayed suburb of the planet-wide city — obviously in reduced circumstances, despite a profitable career. It reminded Quicksilver of one of his less philosphical and more practical versicles, to wit:

Resolved: for crime to pay its best.
Your loot you wisely should invest.

He took a slideway and headed for Hufferd's home. As time was of the essence, he moved to the central express strip and hurtled through the gaudy-colored night. Behind him, a bald-domed, gray-complexioned

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Orgotyr in scarlet tights clambered on the strip . . . not unnoticed by the Confidential Agent.

Quicksilver threaded his way through the maze of slideways, moving from strip to strip according to the directions Central had given him. In time the Orgotyr was replaced by a plum-skinned Schloim from Wolverine IV. Noting this as well, Quicksilver smiled grimly. It was going to be an exciting night.

Shpern Hufferd lived on the first floor of a two-story prefabricated Living Home near the Autophan Canal. Here there were no illusion-displays, only a few antediluvian neon signs whose curt legends read JOE'S EATS; BAR & GRILL; MAXIE'S SODA-LUNCH; ELIM QUANG'S ELITE OVO-SNAVE and the like.

Quicksilver got off the slideway and approached the door, noting that his follower had vanished. He rang the doorbell several times. Then, drawing an all-purpose, electronic key from his waist pouch he focused it on the old-fashioned lock. The iris dilated, and he stepped warily into the room.

Lights flared. And he looked down the cold throat of a General Nucleonic Mark IV coagulator.

V

With a swift, all-encompassing glance, Quicksilver noted his immediate surroundings and his opponent. A small, dingy room and a small, dingy man. The man was old, well past the 150 mark, and going to seed. Also to pot, Quicksilver thought, eyeing his quivering paunch and drooping jowls. But the hand on the coagulator was rock-steady.

"One move, you scut, and I'll give you a blood clot two seconds from your heart."

Quicksilver did not move. Hufferd, if he it was, looked him up and down.

"Never saw ye before, so I'll be askin' ye're name before I clot ye. Speak up!"

Quicksilver's mind flashed, weighing psycho-semantico-emotional factors, and he spoke.

"Captain Rex Dangerfield," he rapped. His verbal blockbuster had the desired effect. At the name of the most feared crime-fighter in the entire galaxy, Hufferd gasped, gaped, and his hand wavered.

Quicksilver's right leg flashed out in a neokarate stroke. The coagulator went flying. And it took him only 1.4 seconds to pin his plump opponent in a hammerlock.

"C-captain Dangerfield!" Shpern Hufferd spluttered, writhing helplessly. "B-but wh-what the divil kin ye be wantin' with an old duffer the likes o' me? I haven't tipped me mitt in twenty-foive years! Been lived the life of a peaceable, retoired citizen taxpayer I have! What could the likes o' you —"

"Where is Dugan Motley?" Quicksilver snapped.

"The boss? Why, Captain, it's been many a long year since —"

There was a faint hiss, barely discernable, even to Quicksilver's trained sense of hearing. The fat old bandit snagged lifeless in his arms. A tiny poison-needle bristled under

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Shpern Hufferd's fat jowl. He was dead instantly.

His mind flashing at high speed, Quicksilver figured the angle of fire. The shot had come, obviously, from the second floor of the building across the street. The first floor was a bar, but the second was residential. From the angle at which the needle protruded from the corpse, the needle could only have been fired from the third window from the left, flying through the dilated door-iris. Quicksilver cursed, briefly, in three languages. Had he not been at gun-point he would have closed the door behind him, and Hufferd would be alive still.

There was no time to waste. He sprang out into the street and slapped his waist-pouch. The micrograv engaged, and he hurtled into the air, booted feet crashing through the windowpane. The room was empty, but the door was just closing. He put his shoulder against it, but it was locked.

Snapping open his pouch, Quicksilver drew out a small silver tube. It flashed, blindingly, and the plastic door sagged in rivulets that flowed smoking over the floor. He jumped through into the hall. Empty. At the end of the hall was a stairway, leading down into the bar. Quicksilver went down into the crowded room and cornered a huge red barkeep in a checkered apron.

Slipping an iridium coin in the fellow's fat hand, Quicksilver asked: "Any rooms upstairs taken?"

"Only the Burgess Meredith Room," the barkeep replied, naming the room Quicksilver had been in.

"The others vacant?"

"That's right, chief. You can take your pick: the Mozart Room, the Iving Berlin or the John Philip Sousa."

"Cultural, aren't we?" Quicksilver snarled.

"The old songs are the best," the scarlet-faced barkeep said.

Quicksilver looked over the throng. It was a motley crowd, the spewings of the gutters of a thousand worlds, but no where among the men and women was either a bald-domed, gray-complexioned Orgotyr in scarlet tights or a plum-skinned Schloim from Wolverine IV.

"Who took the Burgess Meredith Room tonight?" he asked.

"Don't know him. A Cartouchan in bronze and verdigris tights. Said he had a game going."

"He did," Quicksilver said, coldly. "The kind you hunt with a gun, not the kind you play with cards."

He returned to the room he had first entered and searched it swiftly. Near the broken window, wedged against the wall, he found a curious talisman of purple metal. A hollow elipse with a smaller circle within it . . . a symbol like an eye. Odd. He had never seen anything like it. He slipped it in his pouch for later examination and returned (this time via the street) to Hufferd's flat, determined to find something.

The assassin, or his confederate — whether Bald-Dome, Plum-Skin or the Cartouchan in bronze and verdigris — had been busy while he wasted time across in the bar. Shpern Hufferd's flat had been rapidly, but

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scientifically, ransacked. Of his papers only ashes remained. A lot of ashes, meaning an amazing pile of papers. Had Shpern Hufferd been writing his memoirs?

It looked hopeless, but Quicksilver searched the flat. Twenty minutes was all it took, but it produced nothing. He was leafing through the few books in the apartment when he noted, by coincidence, the memoirs of Dugan Motley: *My Life in Crime,* Brasilia Press, Sol III. There was something scribbled on the title-page, above the publisher's address: a series of code-numbers stamped into the paper.

He looked at the numbers thoughtfully. They seemed to be the library subject-code commonly used throughout the galaxy — the Fenster Decimal System. And, indeed, the copy of Motley's memoirs was — or seemed to be — a discarded library copy. But Quicksilver wondered. It would be a clever gambit for Shpern Hufferd to hide Motley's address on the one thing in the apartment that had "Motley" stamped all over it.

But what did the numbers *mean?* "107-A-sM." It was not a phone number, or a homing-system wavelength, and certainly not a set of galactographic coordinates. What could it —

A street address.

Of course! His admiration for Shpern Hufferd warming, Quicksilver committed the number to memory. The old purloined letter trick! And the city, obviously, was the "Brasilia, Sol III" printed right below the punch-code numbers.

He took the slideway back to the spaceport. En route he called Central and asked for Information. There was only one street in Brasilia whose initials were "A-sM" — *Avenida san Miguel* — so his hunch had proved right. And more than that, he was now one jump ahead of Plum-Skin & Company, for they ransacked the apartment without finding Motley's address — or so it seemed, for had they spotted the coded title-page they would surely have burned the book.

He fully expected interception at any moment, but went disappointed all the way to his ship. He searched the slim little speedster with care, but no intruder had penetrated the ship's electronic guardians.

The speedster flashed into deep space. With a bone-shivering subsonic whine the Bettleheim-Ortleigh-Robton Drive engaged, and soon Quicksilver was hurtling towards Sol III at seven thousand five hundred light-speeds.

Swiftly, Quicksilver changed his appearance. Blue facial pigmentation; a scalp-wig of scarlet bristles; a padded pneumatic suit, and he was now a Blue Nomad of Cordova II, Aristocrat-Caste, obviously a tourist. The ship's brain spoke through the wall-vox, reminding him of the time. He ordered lunch.

Over a snack of broiled wyvern tongue and diced karoly, he consulted the ship's small but remarkably comprehensive reference library. Ordovik's *Galactic Religious and Related Symbolism* gave him the answer to the problem of the Purple Eye. The symbol stood for the planet Chait,

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which was ringed with a whorl of phosphorescent purple vapor. The book informed him the symbol stood for the Neochaiteen Priesthood. So now there was a *fourth* party interested in the caper!

Or was the Purple Eye a red herring, planted to confuse him? Time, as the maxim ran, would tell.

Sol III, a medium-sized, oxygen-atmosphere,-one-grav planet whose indigenous civilization dated back as far as history, was called "Earth" by its inhabitants, his reference library informed him. It lay off Centaurus in the Orion Spur, a tongue of stars that jutted rimwards from the Carina-Cygnus Arm. It took him less than an hour to reach.

He spiraled in past Earth's one lonely moon and landed at Brasilia. The city was one huge antique: quaint, provincial, little more than a charming backwater. Why would the Master-Burglar wish to bury himself in such dull surroundings? The old-fashioned buildings, free-form concrete pylons in some ancient organic style of architecture, looked like something in a film epic. There were no slideways, just aircabs — unless you wanted to walk on the curious mosaic-paved streets. Quicksilver took an aircab.

The driver, a native, was surly and sullen — until he sized up Quicksilver as a noble tourist with money to spend. The Earth natives, it seemed, were small brown-skinned, black-haired people who spoke something called Neo-Portugee. They still bore resentment against Galactics, it seemed . . . apparently the Conquest was neither forgiven nor forgotten here. Quicksilver wondered how long it had been since the historic Imperial First Fleet had taken this sector of the Carina-Cygnus. He asked, and the little cabby clacked the date of I.E.L. 10,322 — or 1967 A.D., according to the outmoded native Earthian calendar.

Cruising at 250 mph, the cab wheezed and clanked along pottering above the Matto Grosso Suburb of old Brasilia. From the sounds it made, the antique vehicle could be expected to blow a gasket or lose its venturi any minute now. The farther they went, the higher the fare mounted. The higher the fare mounted, the more cordial the native driver grew. Until, by the time they neared their destination, he was gratutiously pointing out bits of quaint local color: the marina at the mouth of the Orinoco; Blasco Ibanez Park (containing an exact replica of the Lost City of 'Z', which Colonel Fawcett had been questing for when he had perished in the Amazonian jungles that once had stood where now sprawled endless blocks of suburban homes — the replica, Quicksilver learned, was constructed entirely out of old street car tokens contributed by school children — sadly, the Lost City itself had been torn down centuries ago, so that a fly-in video theatre could be erected in its place).

Ah, progress! thought Hautley Quicksilver, wryly.

VI

107 Avenida san Miguel was a palatial mansion whose stately

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lines reflected the well aged patina of an aristocratic, Colonial culture. It was prefabricated entirely out of pastel nonresinous plastics, nostalgically reminding Hautley of his boyhood visits to Grandma's farm. The imposing structure rose amid graceful parks and a clutter of greenhouses and other outbuildings. Quicksilver paid the (exorbitant) fare, added a tip whose munificence made the Earthian's toes curl with ecstasy and rang the doorbell.

He gave his card to the robutler, eschewing, for this once, a *nom-de-plume,* and, while waiting, glanced about. Everywhere was rose-marble from Capuchine and grillwork of fine Phriote craftsmanship, chastly ornamented with a zircon-and-chromium relief illustrative of various folk heroes from the local religion (Abe Lincoln, Mickey Mouse, Fidel Castro and Joan Blondell, to be precise). Dugan Motley, it seemed, had invested his loot wisely. What luxury! What *taste!*

A foghorn voice in fullest bellow interrupted his cultural musings.

"By dog, the great Quicksilver himself, it is! Scintillate me for a no-good, it is a joy for you to meet me — no? Coming in — sitting down — making to home yourself!"

Surging ahead of the staid robutler came Dugan Motley himself, all seven-foot-three and 325 lbs. of him, gigantic bristling pirate-beard of flaming red, eyes blue as the Caribbean, iridium ring in left earlobe and fantastic paunch. He bore down on the startled Hautley like a superdreadnaught descending upon a rowboat — enveloped him in a vast, bone-crunching bearhug that would have made a grizzly blush for shame, thumped him on the back with spine-pulverizing force, delivering floor-shaking salvos of hearty laughter that caused the bric-a-brac to jingle and several alabaster busts to quake on their pedestals.

The Master-Burglar ushered him into a first-floor den only microns smaller than the Imperial Throne Hall. Pushing his guest into the seductive embrace of a cozy pneumatique that instantly adjusted to his contours and began a subtle massage job on his shoulder muscles, Dugan Motley waddled over to the wall and thumbed a dial. The wall sank back, revolved, turning about to reveal a staggering collection of cut-crystal beakers filled with various colored fluids.

"You, my friend, the great Quicksilver of about I have so-much heard, will drink what? Your choice you take of two hundred eleven thousand four hundred thirty-six different varieties of booze, rotgut and panther's sweat (as the Ancients would say, ha-ha). What is it you are choose? Or to smoking perhaps, you want? Sniff? Inject? Nasal-spray? Ovo-Snave? You ask — I got!" he boomed.

For once rather overpowered, Hautley strove to recover his wanted aplomb.

"Chateau Moskowitz, Dugan, if you have it."

"If I am having it — to laugh, it is! Seventeen more bottles I am having than the Emperor himself in the Imperial booze collection, ha-ha. But, no, yes — scut me for a snazzer,

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Hautley Quicksilver

I will having the same, by dog! Vintage of 3506 all-right-ereeno with you, Quicksilver? Local calendar, of course."

"Fine."

They drank.

"Pfthaaa! Hot damn and by dog, that is the genuine old-fashioned moxie, or am I a lying-er?"

"Excellent," Hautley commented, judiciously swizzling the pallid, sparkling wine about the outer rim of his glass and throwing back his head to inhale languidly, first with the left nostril, then the right, then with the left again as it was particularly sensitive. "A charmingly unpretentious little wine, ever-so-cautiously verging on audacity, but sweetly retiring from the brink, blushing, as it were. But pleasant, very — ah — humble, but touched with confidence. From the *west* side of the vineyard, I should say. More sun in the afternoons, you know," he improvised, at Dugan's gape of noncomprehension. "Brings out the tannic acid in the soil. Yes, on the whole, a very hospitable little wine. Very."

Dugan's huge red face split in two, revealing a display of ivory that would have made a piano proud. "Oh, it is the real connoisseur, this Quicksilver, by hot damn and dog! What expertise, what know-how and the savvy, too! Oh, the joy to an old man's heart the sight of you is bringing, the great Quicksilver! Upstairs — I can show you — I got scrapbooks full of you! That time on Zanuck IV when the ruby eye from the idol of N'gumbo-yah

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the Corn Goddess you are the stealing of! What finesse! And the kidnapping for of the huge ransom that Prince from Narphax II — how you are with such adroit and the subtles! And him, the Prince, a forty-foot Crocodile-Man! Oh, the marvelousness of it! It is to an old man's heart like a breath of times old!"

Hautley basked before the warmth of this admiration like Walter Savage Landor before the fires of life.

"Old!" he rallied. "Why, Dugan, you're not a day over two hundred — I'll thumbprint an oath to the fact!"

They joshed back and forth for a while, as two veteran professionals will upon first meeting. But then, swiftly, to business.

"So." Fixing Hautley with a clear blue eye. "But not to the reminiscedoing, or the compliments-exchange, for which did you come, Quicksilver, my friend. But the business, heh?"

"Right." Hautley nodded. "Dugan, you are the one man who tried to turn the Crown of Stars trick and came back with a throat uncut. How did you do it? How is the Crown protected? Why did you fail? How did you get caught in the first place, and you the snorpest fizzler that ever flad a flid?"

The Motley paunch heaved alarmingly with a series of seismic chuckles that wreaked havoc with cheek, jowl and upper torso in general. Hautley waited for this mirthquake to subside with patience. At length it did, and, wheezing and wiping tears of honest mirth from his eyes, Dugan tossed off another goblet of Chateau Moskowitz '06 as lightly as it were a beaker of carrot-juice.

"So that be's the caper, eh my japper? The great Quicksilver planning to crown a beautiful career by snipping off the Crown itself, me bucko? Har-har-har! Yes, old Dugan tried and failed — but better luck to the Quicksilver, and happily will I be tell-to-you the ins and (especially) outs. You see —"

"That's enough free gas, Gutsy. Don't move, Blue Boy, unless you want an air-conditioned duodenum."

The hard, flat, level voice came from approximately seven feet three inches behind him (Hautley's keen ear told him), or right in front of the third in the series of French windows he remembered seeing upon entering the room.

In the enormous mirror behind the racks of liquor bottles, Hautley could see the reflections of these unexpected intruders. Nor were they difficult to identify. A bald-domed, gray-faced Orgotyr in scarlet tights. A plum-skinned Schloim in a feather-covered suit. A gaunt, indigo-haired Cartouchan in bronze-and-verdigris.

He had forgotten to take a precaution both elementary and vital to one in his precarious profession — as he encapsuled it once in a versicle:

Observed: he who would die in bed
Keeps one eye fixed behind, one fixed ahead.

VII

One bore a General Nucleonic Mark IV coagulator. The second

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was armed with a Cariocan boomerang-dirk of razor-edged knifewood. The third bore, simply, a cross-compensating megawatt neuronic paralyzer.

Still seated, Hautley delicately exerted pressure on his left boot heel, which was hollow and contained a pressure-sensitive charge of flash-powder. Using the subtle arts of muscle-control he had learned years ago from the Adepts of New Tibet (Blavatski II, to the Uninitiate) he allowed the exertion of extraordinary thrust to build up — using only those muscles from knee to heel.

"Plax off, bubby! Forget all about the flash-powder in the boot heel or I'll air-condition your liver *and* your duodenum," Bald-Dome snarled. Hautley sighed, but complied. Of course the Orgotyr wore x-ray contact lenses — how could he have overlooked them? *You're getting lax, Quicksilver,* he told himself.

Purple with indignation, Dugan Motley was huffing and wheezing like a beached orc. Any minute now, Hautley realized tautly, the old man would do something foolish.

"Relax, Dugan. They've got us zaxed like a couple of clownders in a chowdery. Watch your arteries and take it easy!"

"By dog — and damn-hot my arteries! Had the blighters replaced with plastic tubing, fore an' aft! But I am of the insultingness! To a guest in my home the sticking-up! That it should happen to an old man, in his age, on whom none ever the dropping got! OOooooo — the shame of it! Kill me quick, scuts, before I am dying embarrass — *akk!*"

"Happy to oblige, Fats!" leered the one in bronze and verdigris, spraying him with a pale lavender ray. Dugan sagged, limbs and paunch flopping in several simultaneous directions like a half ton of monkey-blubber suddenly uncased.

Before Hautley could move, a hissing, crackling sound exploded behind him. It sounded like ten pounds of oily bacon quick fried in a berserk shortwave-oven.

"All right, Quicksilver," an icy voice redolent of feminine wrath seethed behind him. "You're safe now — and I want to know what the *clabber*-doxing, *scintillating* —!"

He turned. The three scuggers lay, rigid as tent poles, blue sparks still snapping from their finger tips. They had been beamed down from behind.

"I wonder, Barsine, if you realize how lovely you look when you are angry," he said, with that suave self-possession that never deserted him, even under the most uncomfortable of circumstances.

Standing in the open window, she snorted most inelegantly.

"You thought you could fool me, Quicksilver! I hid off-planet and waited. Sure enough, you buzzed off before I could finish my cigaril! So I just followed along behind . . . if I'd stopped to think what I would do if *I* were Ser Smart-Nose H. Quicksilver, C.A., I'd have thought of checking up on Shpern Hufferd and Dugan Motley. But now I want to know just what the double-scintillating —!"

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"How could you follow me through pseudospace," he scoffed, "when a ship under Bettleheim-Ortleigh-Robton transposition is, by definition, undetectable even by GAZDAR?"

"Simple, simpleton! When I entered your decrepit castle I pasted a 'tracer' on your ship. Now what did Dugan Motley . . .?"

He whirled, bent over the recumbent colossus.

"Yes, by Xhingu, what about old Dugan? They zapped him down — I wonder if the old walrus is still with us?" He made a swift examination of the body with his pocket medi-kit. Face solemn, he rose slowly.

"Well?" Barsine asked, anxiously. "Did they —?"

"No, not the coagulator. They scuttled him with the neuronic paralyzer."

She relaxed. "Thank the Plenum! I'd hate to see the old reprobate fried. But if it's only an n-gun . . ."

". . . his brain's in a stasis for fifty-six hours," he said, coldly. "Don't thank the Plenum for that! Now I'll never get the information I need."

"What about these three scuggers? Maybe they know something?" she offered, gesturing to the three tent poles, still feebly sparking away. The Cartouchan's discharge had singed a corner of Dugan's fine, Artemesian tapestry-carpet, Hautley noticed. Hautley's mirror-eyes flashed with disdainful scorn.

"Not them — mere hirelings. Turn them over to the local authorities, won't you, Barsine, while I—"

"Oh, no you don't, Hautley! You'll buzz off the microsec my back is turned! From here on, we work together — or *you* don't work at all!"

He sighed, but complied. While Barsine had the robutler phone medical aid for poor old Dugan Motley and summon the police to pick up the three unconscious criminals, he searched the bodies with swift but microscopically minute scrutiny. He found: nothing.

Moments later they were winging back to downtown Brasilia in Dugan's own aircar and before long lifted from the quaint old planet in Quicksilver's sleek cruiser.

"What's our next move, Hautley?" the girl inquired while making certain subtle repairs in her facial cosmetics.

"Now," he said grimly, "I make a try at lifting the Crown."

They were in orbit about Chait an hour later. The trip from Sol III to Thoin IV in the Derghiz Cluster had been uneventful. While Hautley spent the time studying Chaiteen references in his research library, Barsine puttered about, feeding a handful of iron pyrites to the tiny yellow-eyed dragon in its iridium-wire cage. Then, donning yet another of his remarkably complete disguises, Hautley transposed the craft into normal space and gingerly removed the nucleonic frammistator from the drive engine, replacing it with a severely fractured duplicate.

His callboard whined for attention. Wiping graphite from his hands with a scrap of waste, Hautley

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thumbed the switch to *receiving* and stared blandly into the irate features of a Neochaiteen Archimandrate.

"Identify yourself at once! No ship is permitted in our skies by Section 12, Paragraph Z of our Charter of Planetary Sovereignty with your Imperial Government!" the official fumed in an ecclesiastical frenzy of ruffled temper.

"Sorry, friend, but I am helpless. My nucleonic frammistator just fractured, and I was lucky to be able to transpose into the orbital vicinity of a planet."

"What ship are you?" the Archimandrate demanded, suspiciously.

"The RPV *Rafael Sabatini* out of New Poughkeepsie, Altair. We're bound for Y'ha-nthlei in the Gershom Cluster. I am the Most Honorable John Jacob Jingleheimer-Smith, owner and pilot, and this is my secretary, Miss Ethel Glutz. Request permission to land due to need for emergency repairs."

The official burst into a torrent of remarkably innocuous profanity, and while he was seething and bubbling, Hautley observed him carefully. The Chaiteens were descendants of nine-point-norm humanoid stock, but the preponderance of monoatomic fluorohydrates in their soil and atmosphere had, over the fourteen-generation timespan since the first colonists made planetfall on the deserted planet, embued their skins with a delicate shade of mauve. Solar radiation from their Blue Giant primary, filtering down through the weird ring of purple neon circling the planet, had tinctured their facial hair a peculiar canary yellow. The combination was not unpleasant. On the contrary, rather decorative, Hautley thought. His research, by the bye, had explained this Saturn-like hoop of purple gas. Chait was a very old planet, and its sole satellite, eventually reaching Roche's Limit, had disintegrated some centuries before. Since the moon had been nothing more than a gigantic globe of neon-ice — the gaseous debris of a comet's tail which had frozen in the interstellar cold into a sphere of ice — the heat released by the orb's breakup had vaporized the frozen matter, ringing the planet with an extraordinary circle of violet gas. It was listed in the *Tourist's Guide to Central Derghiz*, 17th Edition, as one of The Seven Hundred Wonders of the Universe.

Thinking the Archimandrate had fumed and ranted long enough, Hautley imperturbably broke into his incoherent frothing and observed in an amiable tone: "According to the first article of the Universal Space-Emergency Act of I.E.L. 11,493, as ratified by the entire Imperial Enclave and countersigned by His Supreme Intelligence, the Emperor Emil Fotheringay XIV — and I quote — 'no planet may refuse shelter or sustenance to a distressed spaceman under full penalty of economic sanctions.' And I might also call your attention to the Humane Activities Act, article seven, paragraphs 3, 12, 27 and Appendix F—"

"Very well, very well!" The Chaiteen wilted beneath this barrage of legality. "You and Miss Glutz may descend in your dinghy, but be cer-

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tain your pile is turned to 'neutral' and your ship is in a stable orbit." Curtley the priest gave detailed landing instructions. Seemingly Hautley and Barsine could not just land anywhere, but only in one specific area. Hautley noted these directions and broke off the connection.

"Miss Ethel *Glutz,* is it?" Barsine said, with a touch of coldness to her mellow mezzo-soprano. "No doubt this ridiculous name reflects your true feelings for me, Hautley! I —"

He lifted a hand, cutting her off. "Please," he said, with a slightly pained expression. "We are working now. My name is Ser, John, or Very Honorable — *Ethel.* They may very well have us under aural scrutiny with an audio-conductor beam."

She subsided, and they cast off the dinghy and drifted down to the planetary surface below.

Chait was a small, cold, windy ball of rock. Black, barren, devoid of tree or leaf — a wilderness of stone stretched off on every side. No wonder the ancient Cavern-Kings had constructed their unique civilization underground.

They were met at the landing-stage and escorted from their dinghy by a silent group of priests in full lizard-skin regalia, with dragonish face masks and imitation claws. Hautley's bland attempts to chat with them were severaly rebuffed. The priests radiated disapproval on all wavelengths.

The portly Archimandrate conducted them personally to the quarters reserved for (uninvited) guests. The trip was short and swift, but Hautley did manage to observe something of the remarkable architectural style for which the extinct reptilians were widely noted: a subtle matter of sloping walls, multi-planed ceilings, and chambers of dodecahedral format. Oddly impressive, he was forced to admit.

The Spartan simplicity of their quarters was depressing, to say the least. Two narrow cots, separated by a partition into distinct cubicles for privacy. Beside each cot stood a berry-wood stool, a small three-legged tabouret for toilet articles and pocket contents. A common wash-stand was to be shared by both. The walls, leaning awry at subtly wrong angles, were devoid of ornament or artificial coloring. They were conducted to their quarters and abandoned there, the only reply to Hautley's several attempts at conversation being a curtly informative phrase that dinner would be served to them in two hours thirteen-point-five minutes. Then the lock clicked in the door, and they were alone.

It seemed so many attempts had been made to steal the precious cult-objects, that the Neochait Priesthood had developed a very unhealthy degree of suspicion against *everyone* who chanced, for whatever reason, to visit their stark little world. No doubt their quarters were bugged as thoroughly as could be made possible by modern technology — for sound and vision, in every corner and cranny. Passing along the grim rock corridor en route to these cheerless cubicles, Hautley had felt the brief tingle of a penetrascope, concealed in one or another of the

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rooms they had passed, as it searched him to the very molecular structure. He remained complacent. His equipment was quite sufficiently unobservable.

Using the eye-blink code of Imperial Intelligence, Hautley conveyed this information, together with curt warnings to watch her tongue, to his charming companion. Hence their conversation both before and after dinner was innocuous and desultory, focus made primarily upon the problems of obtaining, or machining, or replacing the defective nucleonic frammistator which would restore their ship's drive to normal function.

This meal, grudgingly spooned out by a silent frater who ignored Hautley's friendly offer of a tip, was a depressing affair of lukewarm gruel and buttermilk. No doubt healthy enough, but hardly up to Hautley's discriminating level of gastronomic artistry.

When night fell, Hautley made his move. His equipment for this exploit consisted of two articles: a self-inflatable balloon dummy the size of a human, which, under cover of darkness, he set up in his cot, covering it with the rough woolen blanket, and a highly powerful light-baffle which would render him invisible to the octaves of visible light, as well as to any scrutiny in the wave-bands of infrared or ultraviolet. These two useful articles had themselves been concealed in a bent-space envelope created by a miniature pseudospace transposer. Out of phase with the universe of "normal" space, this bubble had indetectably accompanied him, towed along by a linkage of psionic energy. Now he transposed these articles to normal space, placed the dummy in his cot without even waking Barsine and, invisible behind the light-baffle, made his way out of the room by means of a subtle use of magnetic force which opened all locks before him.

His brief but comprehensive research into Chaiteen archeology had indicated the cherished cult-object would be concealed most probably in a sub-basement, circular in shape, directly below the main body of caverns.

Thus he made his way past the minor impediments — guards, light-traps, automatic self-sighting disruptor cannons, watch-dogs (whose keen sense of smell he momently destroyed with a spray of deodorant), photo-electric eyes rigged to alarm bells and a rather prosaic gamut of the usual death-traps and poised weights.

Within half an hour he had penetrated into the *sanctum sanctorissimus* where, if his calculation proved unerring, he should find the Crown of Stars.

Unerring, indeed, were his calculations.

There the Crown sat in all its jeweled splendor.

Appalled, Quicksilver staggered back, reeling with nerve-numbing shock.

He had, of course, suspected some sort of incredibly ingenious, suprahumanly clever and diabolical method by which the cult-object should

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be protected from the touch of desecrating hands.

But he had not been prepared for anything like *this!*

Rising in thirty-seven tiers of stone like narrow shelves around the curved walls of this circular *adytum,* stood the fabulously valuable Crown of Stars — *somewhere, lost among seven hundred and seventy-six exact, microscopically precise DUPLICATES.*

Sternly repressing a cold shudder at the damnably, fiendish simplicity of it all, Hautley was ironically reminded of his own versicle, to wit:

Hardest of all: to find
One needle in a mountain of its kind.

VIII

The desk clerk at The Imperial House, Chitterling, Vassily II, was a feather-headed young Bird-woman, obviously a Aurochnoid from Schmeedly's Planet in the Gryx System. She gave a professional smile impartially to Hautley and Barsine.

"Can I help you, Ser?"

"Yes. The name is Quicksilver. Is Dr. Smothly in?"

"One moment." She turned to the communicator console, spoke briefly into a whisper-mike, then turned another bright smile in their direction. "Room 112039-Q. Go right up, Ser Quacksalver, Dr. Smothly is expecting you."

The grav tube carried their capsule to the 112,039th floor with swift, silent efficiency. Hautley, his mahogany features and mirror-bright eyes impassive, as, indeed, was also his meticulously arranged pewter-colored hair, palmed the door; and it opened before him. Barsine Torsche, who had been with him only moments before, was now inexplicably nowhere to be seen. He stepped into the room.

"Ah, Ser Hautley!" Pawel Spiro said, nervously, a little flustered. "I had been expecting you to phone, not come in person . . . and the twenty-seven hours you requested are not yet up! May I assume this means you have decided to accept my rental of your professional services?"

"You may indeed," Hautley said with his accustomed suavity. He viewed the little mouse of a man with quiet pride, smiling gently. Pawel Spiro ran a soft hand nervously through his salmon-tinted hair and cleared his throat tentatively.

"You will — ah — appropriate the cult-object, then, for the Museum? When may we — er — expect? —?"

Hautley's smile broadened smugly.

"You are hiring *Hautley Quicksilver* himself, Learned Spiro! With Quicksilver, to think — to decide — is to act: *behold!*"

With his left hand, he disengaged the light-baffle he had been unobtrusively carrying, revealing . . .

Ah!"

Spiro's sharp, involuntary indrawal of breath was almost a cry of pain.

There before him, dangling from the out-stretched fingers of Hautley's right hand was the Crown itself. Its incredible frosting of name-

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less, curious gems winked and sparkled in the indirect ceiling-illuminants. Its lacy open-scrolled goldwork gleamed with satiny highlights all along the exquisite, coiling arabesques of precious metal. Not only was the Crown breathtaking for its incredible rarity; it was a stunning achievement of the very highest level of the jeweler's art as well.

Automatically, Pawel Spiro extended a hand for it.

Quicksilver's smile hardened.

"Not — quite — yet, I think, Learned! First we have to settle the little matter of —"

Spiro's protuberant eyes glistened.

"Your price? Yes, yes. Listen — I am ready, I am fully prepared — in your presence, here and now — to phone my banker and to negotiate transferral, to any bank you choose — under any pseudonym you choose — the sum of —"

A lifted hand stemmed this semantic torrent.

"That's not quite the matter I had in mind," Hautley smiled (but his eyes were cold as splintered ice). "I had meant a matter of professional — pride, shall we say? For I am not accustomed to being approached for a contractual agreement by a person *hiding his true name and identity from me!*" His voice gained a sharp, deadly edge of polished steel. *"Yes, I mean you, Captain Rex Dangerfield!"*

Spiro's reaction was delicious — classic. His jaw dropped. His eyes goggled. He gaped, stunned.

Hautley's voice turned to a smooth, ironic purr.

"I suspected, of course, as soon as I discovered you were *not* the Learned Pawel Spiro — which, incidentally, took me approximately one minute thirty-seven seconds, Carina Standard Measure. But your 'cover' was so very good, so very detailed, so perfectly dovetailed with the true Spiro — appearance, motive, timing — well, it could only be the work of a truly brilliant professional."

(Spiro was watching him with dull, glazed eyes, devoid of expression or movement.)

"While en route here I took the precaution to dial your department's Personnel Computer and to obtain a print of your dental history. These mirror-eyes, donned for the purpose, are X-ray contact lenses. The fillings and bridgework — alas! We have come so far, technologically speaking, in recent millenia, but we still have not conquered the problem of dental caries! Those in your mouth compare precisely with those in Dangerfield's records. Dental work is, as you must know, a difficult, time-consuming and expensive (to say nothing of uncomfortable) means of disguise: that is, my dead Dangerfield, a good agent will alter fingerprints, palm- and foot-prints, even retinagraphs . . . but he is rarely willing to go to the dentist to complete the job of impersonation."

In a calm and conversational tone of voice, and still without moving, Dangerfield said: "The ornamental buttons on my surcoat are shock-projectors, two-dimensional microminiaturized printed-circuit models, activated psionically. I am

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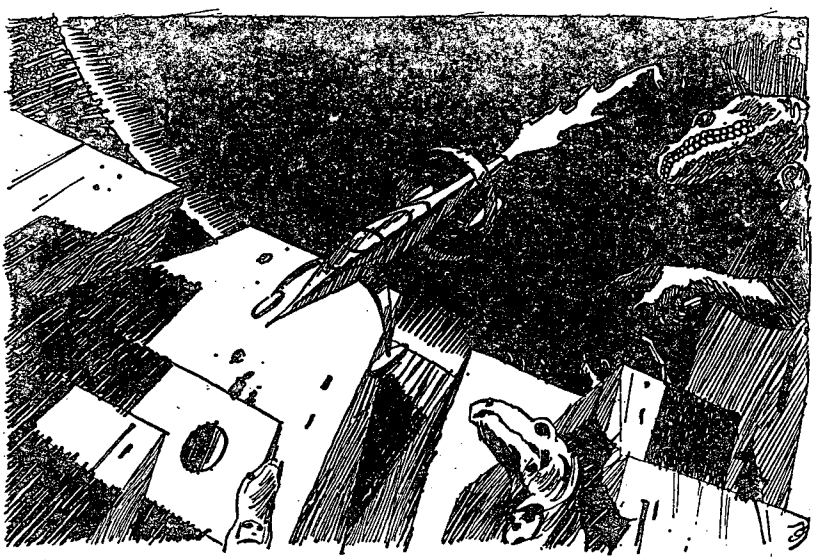
standing, facing you directly. My upper button is aimed at the clump of muscles above your heart. If you attempt to draw a weapon, or to move, I will fire a paralyzing shock into your heart-musculature, and you will die of normal heart-failure!"

Hautley ignored this with vast aplomb and continued talking: "I did not at first suppose it was the most celebrated crime-fighter in the Galaxy who was impersonating Pawel Spiro. But the level of your disguise's artistry was such that you had to be one of the only four men alive capable of such expertise, to my knowledge. I, too, am one, which gave only two other suspects. Both of these men are very well known to me. You are not. We have never before met, Captain; I doubt very much if my two friends would dare risk exposure by confronting *Hautley Quicksilver* in disguise. Therefore, it had to be none other than the great Rex Dangerfield himself! That was only logic.

"Now as to purpose, there could only be one motive. In the course of an official investigation, you stumbled across evidence that the Crown contained some extraordinarily valuable 'thing.' Beyond its intrinsic, or even historic, value — both of which are inestimable. I suspected it to be a *technological secret.*"

"Of course," Captain Dangerfield said coldly, in a voice quite unlike the doubtful, hesitant tones of Pawel Spiro. "The Cavern-Kings of Chait were *not,* as has been universally conceded, of 'prespace' technology. They possessed remarkable energy-



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weapons: a science of armament millenia ahead of our own. The man who had access to this science could become Master of the Cosmos. I learned of this from a renegade Neo-Chaiteen priest, defrocked and exiled. He revealed, under a psychoscopic examination, that one of the gems is an energy-retaining galina crystaloid upon which is molecularly recorded in universally comprehendible mathematical terminology the complete weapons-technology of the lizard-men."

Hautley interposed smoothly: "But he had already sold the information elsewhere, before you came across him, hadn't he? To Heveret XII of Canopus, for one. Whose predecessor, Heveret XI, was one of the most celebrated military warchiefs of the previous century. And his son, now regnant, wished to out-do his late parent. And to a less corruptible member of the Imperial government, who set official scrutiny on the problem of stealing the Crown, ultimately resulting in the attempted retention of my services. And also to one or another of the criminal lords of Thieves' Haven, who set three scuts after Dugan Motley, working through one of his old partners — ah, it's been quite a round-robin, hasn't it, Rex!"

"Well, it's over now, Quicksilver," Dangerfield sneered. "Just drop the Crown gently on the floor and back away. Don't try any games like pitching it at my head or kicking it into my stomach, or I'll give you a coronary on the spot!"

Hautley said quietly: "*Now,* Barsine!"

The three deadly buttons on Dangerfield's surcoat vaporized.

In the corner of the room, Barsine Torsche stepped from behind the light-baffle which had enabled her to enter the room with Hautley under full invisibility and to record every word of the conversation on his ring-recorder. In her right hand she carried a multi-gun, whose non-directional ion-ray component had just disintegrated the deadly buttons with a curved beam. Now the neuronic stun-gun component stiffened Dangerfield and felled him like a disrooted *schmetz* tree.

"Captain Rex Dangerfield, I arrest you under the provisions of Public Criminal Code A-12, subsection 4," she formally intoned. Then, snapping off the recorder, she turned.

"Let's have the Crown, Hautley. The government needs it."

"The Government does not need a weapon so deadly," he laughed, "since we have no enemies. Or if they do, they'll have to find someone smarter than I to steal the correct Crown! And that would be — difficult."

Her watermelon-pink lips gaped. "You mean —?"

"I mean *I* couldn't figure out any way to steal the one authentic Crown from among the seven-hundred-seventy-six exact duplicates. I didn't even try. All I needed was one of the phoneys to confront 'Pawel Spiro' with. If your Cabinet member wants the Crown, tell him to steal it himself!"

Her lovely eyes blazed with fury. "OH! Hautley — Quicksilver!

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You. Are. The. Most. *In*furiating — *in*sufferable — *smug* — " She began spacing her words for intensity of emphasis. "I *hate* you, you, you super*cill*ious, smiling, su*per*ior gruzflak, you!"

He reached out an arm and casually pulled her into a smothering embrace. Then he kissed her with such expertise that her toes curled and her kneecaps wilted like day-old asparagus.

"That's incorrect. You utterly adore me," he commented, releasing her.

KRAK!

Her palm connected his cheek with stunning force. Crimson with fury she slapped a grav on the paralyzed Dangerfield and towed his weightless bulk from the room. Hautley gingerly stroked his cheek and sighed with weary boredom.

"Such adoration! Why does she pretend to fight it? The girl is mad for me."

He had a versicle expressive of this amorous *ennui:*

Grim jest: they yield at touch of hand.

Too-easy conquest is . . . too bland! END

Coming . . . Tomorrow!

Now that *Worlds of Tomorrow* is on the more leisurely quarterly publishing schedule, it is a little more difficult for us to look into our crystal ball and see just what's coming up in the next issue . . . because as of this writing, the next issue is only a gleam in the editor's eye.

But some of the sparkles show up pretty clearly, at that. Sam Moskowitz has turned in his next column, which has to do with the theme of psychiatry in science fiction, and carries on the tradition that has won him readers for the past several years.

Then we have two exceptional articles. One is *The Shape of Shapes to Come,* by Robert Bartlett Riley. Riley is a New Mexico architect who wrote us seeking information on anything we had published about the architecture of the future. Well, we hadn't published anything very significant, and we couldn't remember seeing anything in print that really covered the subject . . . so we asked him to fill the gap. As you will see, he did it handsomely.

Then we have a piece by Robert S. Richardson called *The Sun Grazers,* which deals with some little-known problems of comet-watching. Like — what do you do when you're trying to observe a comet like Ikeya-Seki, and the only place to do it requires skulking under your neighbors' bedrooms at daybreak?

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THE 1991 DRAFTEE

by JOSEPH WESLEY

When tomorrow's crop of babies grow to draft age, here's what they'll find themselves facing!

A number of young men are being drafted these days. It is quite possible that, twenty-five years from now, a number of their sons will be being drafted. The war won't be the same one, probably, nor will many of the weapons be the same. Extrapolation is dangerous, with technology advancing, in the world of weaponry, with rapid strides. Nevertheless, let us attempt to examine this advanced technological world through the eyes of one inductee of the year 1991 — or, rather, through our eyes, in reading selections from some of his letters.

His first name is Mike, and he is the second offspring and first son of a young man who, this very day, is being poked and prodded and treated to other similar indignities during his pre-induction physical examination"

"Dear Mom and Dad and all, We haven't had much liesure time, but I take my pen in hand to let you all no I am fine, and hope you are fine to. Like you said they woud, Dad they sat me down in the barbers chair and went rite over my head with the power buzzer. You should see me now, ha ha!"

(Paranthetically, do not be surprised at Mike's calligraphy or grammar or spelling. We have chosen an average draftee — that is, a young man considerably above the average in intelligence, since more than three fourths of all those called are rejected — and the average draftee has not taken pre-High-College courses, but merely the mandatory sixteen years of schooling. With both drop-outs and advanced tracks of learning eliminated by Federal

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law, Mike's post cards and occasional letters are surprisingly readable, as compared with those of most of his peers.)

Army authorities have traditionally been dissatisfied with the hair styles of young civilians coming under their control, and the army of 1991 is no exception. Mike, as an average twenty-three-year-old of his day, has groomed his hair in a manner considered appalling by most of his elders, although he has not gone to extremes. He has had his head shaved and treated with a follicle depressant. He has then had his skull enameled with abstract designs — avoiding the tattooing of the far out element of his generation — and has had several coats of wax applied over all and buffed to a high polish.

The barber, as he does to all inductees, ran an electric device — a buzzer — over Mike's head, stripping off wax and enamel right down to the bare skin. The same device applied a hair growing stimulant. As he rose out of the barber's chair, Mike felt far more naked than he had after the mere removal of his clothes. The accelerated hair growth that resulted from the follicle stimulant, incidentally, gives the army authorities repeated opportunities to be displeased whenever they find a trainee with hair longer than the regulation limit of one point two centimeters.

"Dear Alice,

Wish you were here, ha ha! You would be proud of me. Im already a squad leader. Yesterday we had a simulated emergency deployment. They shipped us out to some island and we marched around awhil and then they shipped us back. Ive got a little headacke today like after that going away party we had together but am otherwise in the pink."

As a prospective member of a continental-based counter insurgency division, Mike had successfully passed his most important field test. There had been rigid pre-examinations and eliminations, of course, but only by the conduct of an actual emergency deployment can a man's tolerance of the treatment be actually ascertained. The fact that there is a death rate — euphemistically called an "attrition rate" — of more than a tenth of a per cent in the conduct of this field test is a closely held secret.

The day of the field test had started early. Mike, together with 599 other recruits, had been routed out of his cot, sleepy eyed and profane, at 0330 hours, to dress in full field pack. Then, with empty stomachs growling in harmony with their feelings, the men were trucked to a nearby short-runway jet field. Here, they lined up four abreast outside the standard processing room clamped to the main entrance hatch of a huge hybrid turbo-ramjet aircraft. At ten-second intervals, groups of four men stepped into the processing room and were smote hip and thigh and biceps with needles. Then their stiff and unconscious bodies were stored in racks within the body of the giant aircraft, alongside the armored vehicles, self-propelled guns and other paraphernalia of warfare.

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Mike remembered entering the processing room, his heart pounding with fear of the unknown. His next conscious memory was of leaping from the plane, filled with rage at the "enemy," weapon at the ready and mind filled with the need to run forward to the nearest cover, drop behind it and — aside from the continuing need to kill his foes — wait for further orders.

He could not recall the hypnotic treatment that had occupied the time of the flight from the mainland to Hawaii, although he was conscious of an elapse of time.

He knew nothing of the slow vertical lift of the transport on its turbojets or of the shift to horizontal flight. He did not know when the ship, at 20,000 meters and Mach 3, stopped the turbo rotors of the massive engines and shifted to ramjet operation. He knew, only because he remembered classroom lectures, that the craft then accelerated to Mach 7 and increased its cruising altitude to forty thousand meters.

That transport can fly halfway around the earth in about three hours; the trip from the mainland to the exercise area in Hawaii took far less than that. After three strenuous hours of field exercises, the six hundred men — less two who had had an unsatisfactory, though less than lethal, reaction — were back in their own barracks in time for lunch.

They rather liked the day, in fact. They were given their first half day off since training had started.

Their instructors were even more pleased. Not only had there been no deaths and only three physical rejections (one as a result of the return trip), but every one of the recruits had accepted hypno-conditioning in satisfactory manner. Since, in battle, their lives might, and probably would, depend on that conditioning, the instructors hate to have to send on to battle those men who are unable to accept the conditioning — and yet, they are not permitted to reject men for that cause. Officially, it has not been admitted that such conditioning ever takes place. Senators have asked public questions about "mind tampering," but official public denials have followed quickly, and the questions have somehow ceased.

"*Dear Bill,*

Wish you were here, ha ha! You sure are a lucky stiff, going to highcollege and getting draft exemt and all. Of course you always toled me I shoud study, but like I *said, those teachers already got paid to much to teach me so why didnt they do it? Anyway, after they made us all go to school for sixteen years I figured that was plenty and the army woud be better and it probably woud be only they make us study these languages I never even heard of all the time and just when you start to pick one up they change them on you.*"

Language study, hypno-assisted, does indeed form a most important part of Mike's education for war. Since radio links are, and must be, used on a regular bases for battlefield communications, and since on this basis it is not possible for either side to keep his opponent from

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capturing samples of his transceivers, together with any attached cryptographic or scrambling devices, the problem of communications security is an exceedingly difficult one.

The situation is kept under control through the use of a large number of special battlefield languages, or rather, dialects. Each battalion has its own special language — simple in structure and limited in vocabulary — changed as often as once a week. Command links at various levels use different languages, changed equally often, so that in a large engagement, a battlefield leader may be required to remember, and be able to use fluently, several different languages. Those battle tongues are taught rapidly with the aid of hypnotics. In fact, the necessity of changing the battlefield language is more often the reason for rotating front line soldiers than is battlefield exhaustion.

Of course, a language of this type is not cryptographically secure — the enemy is quite prepared to translate any such language rapidly. It is useful, however, because the troops who know the language can respond instantly to instructions, while the enemy must route the artificial language orders through mechanical translators — which have also been equipped with decrypting devices — and then relay the information back to the front line personnel who can take counteraction. This time delay makes the system worthwhile.

"Dear Mom and Dad and all, Well, were all done with basic training and Ive been assigned to the best unit in the Army and they will ship us out tomorrow I don't know where were going and if I new I woudn't tell you. Or maybe I shoud and they woud think I was a spy when they censer this and I woudnt have to go after all, ha ha! I'd be in the guard house. But seriously after all the practice we had in an airplane their going to send us by boat and that sounds awful old fashioned and slow but I guess they no what their doing."

In fact, the authorities did know what they were doing. The regiment to which Mike was sent on the completion of his recruit training was not engaged in an emergency sortie, but rather in the routine replacement of soldiers whose time had expired in fighting the endemic conflict in distant jungles. For this type of exercise, sea transport was by far the most economical and efficient that had even been devised. The ship Mike travelled in was not even noticeably different from those of one and two generations earlier, and the sea sickness he suffered and the bad jokes of those who did not so suffer were not one whit eased by the advances of medical science over the anguish of his father in similar circumstances.

For most of the journey, the ship travelled alone and unprotected. The unwritten laws of the pseudowar made of the high seas a safe haven, for ships of the enemy as well as for those of our own side. There are still war hawks who proclaim that, since our own power is overwhelming at sea, we should stop any shipping intended for the foe and should,

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therefore, convoy our own shipping, to prevent retaliation. This advice is ignored, in the interests of avoiding "escalation".

As Mike's ship approached the area of conflict, it was met by a covey of half a dozen small craft of about 500 metric tons each. Mike and his compatriots watched idly as these naval ships, no more than a tenth the size of their own merchantman, come skittering over the horizon on their foils. In circular formation, they ringed Mike's lumbering ship. When it was precisely in the center of their formation, they slowed abruptly and dropped to their hulls, their stern wakes suddenly overtaking them and setting them to rocking.

Although they were small, they were militarily powerful, with long-ranging sonars and radars and with weapons capable of destroying what their sensors detected. As usual, they were not called on to take action; their function was precautionary. As the ship they were convoying entered harbor, they suddenly and simultaneously rose onto their foils, slid into columns and disappeared at high speed around a point of land, leaving to the harbor defense installations the further task of protecting Mike's ship.

"Dear Alice,

Well here we are at our staging base. We will probably be sent up forward to where their fighting in a few days but you musnt worry about me. Ill be all right. And if I get any medals Ill send them to you for souveneers, ha, ha! Remember how you used to say how much you liked to see me in my footbal uniform because it made me look so big and strong that you couldnt resist me? Well, you should see me in my new outfit. Theyve given us some special armor and weapons and Ill send you a picture if theyll let me, because Im so big Ill bet you really couldnt resist me so I wont send the picture until Im on the way back home guess why."

The special field armor that had been issued to Mike's outfit had been required because of reports that the enemy is once again commencing to use laser weapons in this theater of operations.

The laser beam, developed into a "death ray," has proved useful to both sides in many situations. It is limited, of course, to line-of-sight. In the hands of troops it is somewhat delicate, in that mistreatment can drastically reduce its efficiency. Nevertheless, since ammunition resupply is limited to a power pack, it is much used in areas where logistic problems are great. Several varieties of armor have provided protection against it, greatly reducing its effectiveness, except that the armor lowers the mobility and speed of reaction of an enemy making use of it, to a very considerable degree. It was the latest version of this armor that Mike was admiring — even as he would curse it later, when he endured its discomforts in the field.

In addition, gas, as a weapon, has been restored to a status of acceptability. All gases in use are entirely temporary in their effects. Over the years, there was much unfavorable

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feeling by the public against the use of even temporarily harmful gases — so deep was the ingrained fear of the word itself — but as time has passed and it has continued to be used, there has been a gradual simmering down of the diatribes against it. After all, when a group has backed off from condemning all forms of war to condemning only certain devices of war, it is very difficult to retain a greater feeling of horror against a weapon which will leave its victims in excellent physical and mental condition tomorrow — as the gases in use all do — than the feeling of horror retained against a weapon, such as a machine gun bullet or a mortar shell, which can leave its victims painfully dying or even more painfully, permanently maimed.

So gas is used. It is used with penetrants which can work their way through all but the most modern of gas masks. It can work at such low concentrations as to be very difficult to detect, even with modern instruments, in the field. It can act in a variety of ways: to remove consciousness, to reduce alertness, to create susceptibility to suggestion, to induce general malaise.

In fact, it might have proved to be a decisive weapon in the hands of the aggressor of either side — the side launching a surprise attack — if it were not for the effective use of a counter defensive device: gas. Each side has developed a variety of gases to be loosed against its own troops when the enemy has set free his gas weapons upon them. While these tend drastically to affect judgment, for the most part, they do serve to trigger previously implanted hypnotic suggestions, so that under the influence of this counter gas, a soldier who should be unconscious, susceptible to enemy suggestion, sick and tranquil — any or all of these — will still go on fighting violently and effectively, if somewhat erratically.

Of course, far more deadly gases than these exist, and some of them are even stockpiled by all the major antagonists; perhaps enough to defoliate the earth and to render it uninhabitable, while at the same time destroying all animal life upon it. These, in the same class in destructive potential as the major bombs, are deterrent weapons and, of course, have never been used. All of mankind, with no enormous confidence, continues to hope that they never will be used. As it is, some of the non-lethal gases are more than sufficiently terrible, being designed to provide permanent or at least semi-permanent incapacity.

"Dear Mom and Dad and all, Im sorry I havent written to you for so long but Ive been to busy. My buddies and me have been up in the jungle fighting the war and dont let anybody tell you it isnt a war because it is. You remember Jack that I told you about that we went on a couple of dates together and sometimes just liked to chew the fat in the evening? Well, hes dead and I saw him get it and it was pretty bed. We were crawling along in the jungle checking to see if the enemy had cleared out of it like the

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reports said and he was almost right beside me and then he suddenly jumped up and started to run and then he tripped and right after that he just blew up. But dont worry about me Mom. Ill be all right. I guess it must have been a tarantula got him."

The Tarantula of 1991 is not a spider. Instead, it is a deadly little device that has been developed by both sides for jungle warfare and that requires rather elaborate counter-measures by the defenders. It is a self-mobile device, containing only a small explosive charge. It is called, by our side, the "Tarantula" for the reason that it is not much larger than one of those overgrown spiders and propels itself on hinged legs (six, instead of a spider's eight — the designers were not purists), so that it even to some degree resembles a tarantula.

The device, in one of its avatars, has a highly efficient olfactory sensor, keyed to the characteristic odor of humans. It crawls around until it finds a human; it works patiently and unceasingly until it manages to get close enough to touch its victim — and it can outrun him, if the contest turns into a chase. And then it blows up. Recruits have nightmares of waking to find a Tarantula cutting its way into their tent and of running and running, with the hideous little thing drawing ever closer, of fording streams and climbing trees and of sweating so that their scent grows ever easier to follow, until finally the metallic beast touches them. It makes for almost compulsive cleanliness among the green troops.

Inhibiting electronic broadcasts keep these devices pointed away from the lines of those owning them and keep them from operating if the enemy thoughtfully traps them and deposits them in areas where they would encounter the troops of their own side. These things are distinctly behind-the-lines weapons.

A variant of the Tarantula, and even more morale shattering to recruits and green jungle troops, is the "Death Moth." This is a winged variety of the same sort of smell-homing gadget. Actually, it does not much resemble a moth, being far too heavy to be able to fly as an ornithopter with any reasonable wingspread. Instead, it is a sort of helicopter, with a ducted fan providing lifting power. It is heavy enough to break through wire mesh screens to get at its victims and is small enough and agile enough to be hard to hit with hand held weapons.

It is not as much used as the Tarantula, however, because it is considerably more expensive and has only a fraction of the lasting power. Tarantulas can be left behind in an evacuated area, and they keep hunting for weeks; Death Moths fly only for hours. It is also relatively easy to neultralize the moths by using a counter weapon, called "Wasp." This is basically a similar device — a bomblet carried by a ducted fan — keyed to home on the distinctive buzzing sound created by the Death Moth.

These Wasps normally remain on the ground, to keep from confusing each other, until a Moth gets close enough to be heard. Then a Wasp

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attacks and destroys the Moth. At the distinctive sound (deliberately made distinctive) of a Wasp exploding, all Wasps within hearing immediately settle to the ground, so that they don't go on to destroy each other. This occasionally lets a Moth escape for a time, but it is reasonably effective. Without this precaution, the first Moth on the scene would attract all Wasps within hearing, and the Wasps would continue to attract each other, since the sound they make in flying is inevitably much the same as that of the Moths.

The Wasps would then eliminate each other, and later arriving Moths would be unopposed.

Efforts to design a similar automatic counter device against the ground crawling Tarantulas have resulted in the "Hunting Spider." This has not been notably successful, however. There is no distinctive characteristic of the Tarantula not shared by other natural or artificial denizens of the jungle battleground. It is just possible to use the characteristic emanations of the power supply of the enemy version of the Tarantula as a source of information to home on. These differences are, however, so slight that exploring Hunting Spiders frequently cause as much attrition to each other as they do to the enemy. Still, they are used, coupled with secondary devices to try to keep them from getting too close to each other, in order to assist in keeping the build up of Tarantula types from becoming unbearably large in any one area. This measure, however, does not always prove to be effective.

"Dear Bill,

Bill Id like you to do something for me. I told Mom and Dad that Ive been sent back from the front lines for a little vacation, but the fact is Im in a hospital. Now dont tell them or anything like that because theyd just worry but there are so many television cameramen and such running around with there live shows and all that Im afraid they may find out and if they do just tell them that it isnt very much and thats right it isnt very much as a matter of fact.

If you want to know what happened Bill I got gassed. They gave me a medal a Purple Heart but its not my heart thats purple. I wont even tell you where I got wounded, but I was wearing my antigas suit and when I had to go I tried to use it like they told me how, and there was some skin penetrant gas in the area and I must have goofed. Anyway Im sleeping on my stomach ha ha!"

Mike was, in fact, a very lucky young man. He had been exposed to a very light concentration of a gas designed to provide permanent disability. The very low concentration of the gas, which had been deposited several weeks earlier when the enemy abandoned the area, together with a very fleeting exposure and prompt treatment, meant that Mike would recover fully in a matter of months.

Against those gases that are deadly when breathed, as a passive defense, small semi-permanent nose filters have replaced old-fashioned gas masks, because dangerous concentrations of gas can be so low that

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ordinary detectors are ineffective, and there may not be warning to permit donning bulky masks. Of course, these require that you keep your mouth shut and breathe through the filter. And it is true, as Mike found out, that some gases can do their work by being absorbed directly through any mucous membrane, or even through the skin, although this does normally require somewhat higher concentrations of gas then are adequate when only breathing is involved.

Perfumes and deodorants are extensively used, not to keep from offending, but to assist in staying alive against olfactory seekers. More effective than these, which can have their own distinctive odors and then become the targets for other weapons to home in on, are coverall suits and helmets, light in weight but impervious to the air.

These frustrate the smell-homing Tarantulas (though not the kind that homes on body heat) as well as providing an excellent counter against almost all varieties of gas. The greatest weakness of this defensive device is the necessity of the soldiers using it to remain hooked, except for short periods of time, into an air-conditioning system. Even a portable air supply isn't enough — an anti-gas suit quickly becomes a near-lethal steam cabinet if kept closed and not connected to an efficient air conditioner. Air conditioners can be made fairly small and portable, but they are still inconvenient and hampering to carry. And they themselves form lucrative targets. Also, the coverall suits require great skill to use properly; otherwise the soldier finds himself totally unprotected whenever he finds it necessary — as do all men on occasion — to perform normal and essential body functions.

Mike's skill had proved to be insufficient for the occasion in this vital area.

"Dear Bill,

Im home on what they call convalescent leave, and they tell me that unless things get a lot worse I wont have to go back at all and Ive got a pension and a good sitting-down type job because the gassing doesnt bother me unless I try to do to much exercising.

So I asked Alice to marry me and she said sure shed make it legal and hows about coming down Tuesday and being best man at my wedding, except you know wholl really be the best man ha, ha!

All best,

Mike

—END

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FROST PLANET

by C. C. MacAPP

Illustrated by MORROW

Someone was murdering on the icy planet — someone who was not a human, and not an alien either!

I

Ignoring the faint hostility of the six or seven civilian mine workers, Colonel George Keane stepped forward and bent over the corpse of old Jonno Estes. He didn't have to touch it to know it would be stiff as an icicle; on this part of the ice field the air never got as warm as ten below zero centrigrade, and there'd been a blizzard the day and night before.

He had to put one foot on the body and use both hands on the handle of the big knife to pull it out. The blade was Terran trade steel, but the workmanship was native — the metal left thick, the edges more hammered than honed; the huge ivory handle firmly attached by three copper studs. The blade had gone

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nearly through Jonno, from behind.

Someone — a mine foreman named Gus Leitner — remarked, "Guess no one'll stand up for the Lubs this time."

Beneath the face-flaps of his parka hood, Keane flushed slightly. He straightened and met Leitner's eyes. "There's been no unprovoked violence from the Lubs in the four years I've been on this planet. We'll investigate this impartially. Meanwhile, I don't want anyone spreading false stories."

Another man said, "I guess we can tell what we saw. You think a man could drive that knife into him like that?"

Keane hesitated. "That's a fair question. Just don't go telling anything you *didn't* see." He turned to Paarensen, planetary superintendent for Terran Factors, Inc., who bossed the mines as well as the fur trading. "Will you see that he goes back to Mantown for an autopsy?"

Paarensen, a bulky blond man with shrewd gray eyes, grunted an oath. "Sure; if it means anything. What are *you* going to do, Colonel?"

Keane put down his dislike of the man and asked coolly. "What would you do?"

Paarensen gestured impatiently. "I'd get hold of Big Daddy Lub and tell him what'll happen if he doesn't deliver the killer fast!"

"I don't doubt you would," Keane said dryly. "I intend to see him first thing. After that, I'd like to talk to you about Jonno's recent activities, if you can check on them. Will you be in your office?"

"I suppose so." The superintendent turned to get the body loaded into a flitter.

Keane climbed into his own flitter and lifted a few feet from the ice. He hesitated, thinking, before calling his HQ. His new adjutant seemed to be a good man, but in the twenty-odd days (somewhat longer in hours than Terran ones) the lieutenant had been on Mellunde, he'd hardly had time to be accepted by the garrison. Still, there was no choice.

Keane picked up his walky. "Lieutenant Kipp. Kipp? Say, we've got trouble. A man's been murdered, and it looks as if a Lub may have done it. I said *may*; personally, I doubt it. But I want you to get all emergency posts manned and slap a curfew on unnecessary movements. Call the spaceport and put a hold on *Hermes* — she's due to take off before long — and send someone to each of the transportation pools. Don't let anyone carrying weapons leave the city. Man three or four squad flitters and get them aloft. Tell them to intercept and turn back anyone headed for Lubtown. Get cooks on duty, and so forth. Call in the stand-by sections and keep them ready. Okay?"

"Uh, yes sir. Where will you be, Colonel?"

"I'll be somewhere south along the Wulluh Gorge, looking for Gakkru. Big Daddy Lub. I'll be below the cliffs and out of contact for a while; if I'm more than an hour I'll lift high enough to radio in. Lieutenant, there'll be some growling, but don't argue and don't let anyone push you around."

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Keane glanced down at the big Lub knife on the deck of the flitter. The congealed blood on it was beginning to melt.

He muttered in frustration. Why in hell, with people finally getting reconciled to the comparatively new laws regulating commerce with natives, did some Lub fool have to do a thing like this? If a Lub *had* done it. Especially to Jonno Estes. If there was a man on Mellunde better-liked than Jonno — and, except possibly for Keane himself, on better terms with the Lubs — he didn't know who it was.

With the canopy closed and the air in the flitter growing warm, he unzipped his parka down the front and tossed back the hood. Heading east, he climbed another thousand feet to look around, hoping to find a clue.

The stretch of ice where Mantown and Lubtown (both consisting of tunnels and chambers in the ice) were located was about two hundred miles long, east and west, and about fifty wide. It filled what was possibly a deep chasm between the Gale mountains on the north and the Gundersons on the south — the latter being the immense rock rampart that confined the whole ice sheet. This local rectangle of ice was quite stable, frequent snow just about compensating for the very gradual efflux of ice. Actually, this was more or less an eddy backed up by the great Tintan glacier east of it, which Gale mountains and spilled out came down from Tintan Gap in the through Wulluh Gap in the Gundersons.

He was nearing the glacier now and could see the striations in the ice, in parallel curving lines, spanning the whole distance from one gap to the other. Near Wulluh Gap, several temporary mine buildings, and an assortment of tractors and other vehicles, dotted the ice, tiny with distance but very visible in the crisp, clear air. They were harvesting a lateral moraine the glacier had been building for eons. He passed above them and turned down Wulluh Gap, letting the flitter sink sharply with the glacier, hoping (as he always did) he might be at the right moment to see some vast chunk of ice break free and go crashing majestically down among the tumbled boulders of the terminal moraine. But there was none today.

This side of the Gundersons was a sheer drop; mostly bare rock, with patches of snow near the top from which tiny streams trickled. Wulluh River itself was the melt-off from the glacier. He was flying down that now; ahead of him it entered the only break in a solid forest of dark green trees still bearing snow from last night's blizzard. He drifted through, below tree-top level. A small group of Lubs, fishing from some rocks near midstream, looked up as he went over. They fished from midstream because there were things in the forest even a Lub feared.

Thirty miles whipped by. With lower, warmer altitudes (comparatively) the forest thined, then gave way to the sedge — coarse grasses taller than a man. He lifted from the river gorge and flew along west

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of it. He and Gakkru had a tenuous arrangement to keep posted on each other's whereabouts, and it was his understanding the Lub overchief would be somewhere here today, on a hunt for a big sedge-boar that had been spotted.

He grinned, thinking of the aptness of the nickname, Big Daddy Lub. The Lubs kept growing until senility set in. Gakkru wasn't senile yet; but he admitted to eighty-odd Mellunde years (over a hundred Terran), and he was a head taller than any other Lub Keane had ever met. That, since the Lubs were built somewhat along the lines of a Kodiak bear, put him a good yard and a half over Keane's own five-eleven.

Before long he saw a trampled area of sedge with a huge dark shape in it and some less huge ones around it. He approached, made a circle around the area (a courtesy, making sure nothing dangerous was stalking), then slanted down. Gakkru, recognizable by his size and the tinges of gray in his fur, stood apart, watching him come.

Keane had been trying for four years to make up his mind whether the Lubs looked humanoid or not. There was definitely something bear-like about them, beyond the thick dark fur and the lower jaw with its canine teeth. There was no snout or muzzle, though, and the nose, wide and flat and pinched even flatter against the face at the nostrils, was reminiscent of a rough old human pugilist's. The ears, small cups with no lobes to freeze, weren't humanoid. The forehead and the small deep eyes might be. The body — well, they walked erect or on all fours, as the situation persuaded them. They were as nearly man-shaped as bear-shaped, but they wore a harness over both shoulders instead of a belt to carry their scabbards and pouches, because belts wouldn't have stayed up.

Their hands were not paws, but their feet were.

Keane landed on a spot at the edge of the trampled area.

"Friendship, George Keane." The patriarch, towering over the Colonel, pronounced the English words slowly but distinctly.

"Friendship, Gakkru." Keane, his own voice a little odd in this thick lower air (Mellunde's air was breathable for a short time, despite the excess carbon dioxide), added a few words of greeting to the other Lubs, among whom was Gakkru's son Bwult. He walked over and looked at the dead sedge-boar. "A fine specimen." The elephant-sized beast wasn't piglike, really, except that it carried and used its two-foot tusks as a boar does.

Gakkru took several slow steps, bent and measured one of the tusks with spans of his big fingers. Then, showing his lower canines in the equivalent of a grin, he drew his knife — an all-ivory one, carved from a similar tusk, it's blade narrowed from years of re-edging — and compared it with the dead beast's tusk. "A good specimen," he agreed, "but not *too* good. I would not want my son to wear a better trophy-knife than mine."

Bwult grinned briefly. The knife

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he wore now had a steel blade. He gave Keane a formal, rather than cordial, gesture of by-your-leave and turned to begin work on the kill.

Amenities done, Keane said, "Gakkru, there's bad trouble." He walked to the flitter, got the murder weapon and handed it to the patriarch.

Gakkru blinked once and lifted the knife to smell of the blood still on it. "Human." He rumbled something in the Lub tongue ("Messenger, home, quick," as Keane caught it), and the younger Lubs gathered hastily to him.

Keane said, "I will fly you to Lubtown if you wish. Or anyone you want to send."

The overchief nodded ponderously in thanks. "I will go, then." He told Bwult, in Lub, "Carve the meat. Bring what you can and cache the rest." He walked to the flitter, eyed it doubtfully and began to squeeze his huge bulk into the passenger's seat.

Keane walked around and squeezed in beside him, made the gesture of by-your-leave to the other natives and lifted off gingerly. He did not go back to Wulluh Gorge, but headed directly northwest, climbing to clear the forest.

Gakkru turned the knife over in his big hands, his face unreadable. "Did one of my people do this, George Keane?"

Keane didn't answer for a moment. "The problem," he said finally, "is that most of Mantown will think so." He described how the knife had been driven into the body. "Jonno —" he noted Gakkru's blink, "yes, it was Jonno Estes — was northeast of town, almost to Tintan Gap. He was apparently going to cross the glacier to Warm Lake, where he had a hidden cave or something. He had a rifle and a telescope — they're both missing, by the way — and we think he was probably going after crag eagles."

Gakkru nodded slowly. "Yes, he had taken some fine eagle pelts there. But his cave was not near Warm Lake. It was on *this* side of the glacier."

"Oh?" Keane pondered that. "Well, anyway, I have no idea why anyone would want to kill him. Unless . . . excuse me; unless some Lub wanted the rifle."

Gakkru made a sound like a sigh. "Many would want it. But to kill Jonno Estes . . . I will tell you a thing, George Keane. Maybe I should have told you before, but it was a small thing and did not involve my tribes. Jonno did not accept your new restrictions on trade with us. He had been stealing things from Terran Factors and trading them to tribes many miles west."

Keane said, "If you mean whiskey. I knew that was going on, but I didn't know Estes was involved."

Gakkru wagged his head. "Not whiskey. Frenet cells. The things that make heat."

Keane looked at him in surprise. "Frenet cells? Why, they're worth — he couldn't have gotten away with many!"

"No. Not many. But even one, in the old days, used to trade for as many fine pelts as a Lub can carry.

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It would melt more burrows than a hundred of us would be able to using our own way."

Keane put the flitter into a climbing spiral, until the jagged line of the Gundersons showed beyond the forest, and reached for his walky. "Lieutenant Kipp."

"Colonel? Yes, sir."

"Anything up, Lieutenant?"

"Well — nothing really drastic, sir. We had to intercept several flitters, and in Mantown we disarmed one group of citizens. The rumors floating around are something awful. Are the Lubs really declaring war?"

Keane grinned at Gakkru and handed him the walky. The overchief growled into it, "We Lubs are at peace with you, and we are not fools. We have seen Terran weapons and would be foolish to start anything.

Kipp stammered a little, then caught his poise. "Well, uh, sir, there's a lot of wild talk. Colonel. Mr. Paarensen has been trying to reach you, and so has the City Manager. Paarensen's been giving me fits."

"All right," Keane said, "I'll call him right away." He made a gesture of apology to Gakkru and then called Paarensen.

The superintendent's voice was angry. Keane! It's about time! I've got things to talk to you about. Are you alone?"

"Not exactly."

"I'd better not talk, then. Will you come to my office?"

"As soon as I deliver something," Keane told him. "Within half an hour."

II

Lubtown, which, under the stimulus of Terran trade, had grown from a few ice burrows to a considerable maze of tunnels and chambers and ventilation-flues, was between Mantown and Wulluh Gap and just north of a fairly good pass over the Gunderson summit. The Lub Trail came through this pass and zigzagged down the steep southern slopes to the hunting country below. There was a certain amount of game on the ice itself or in the high mountains, but the real volume of furs came from the forest or the sedge.

As the flitter climbed toward the pass, Keane saw Lubs in small bands, plodding upward, bulky packs of furs on their shoulders. It was earlier in the afternoon than they usually started home. He turned to Gakkru. "Expecting another blizzard tonight?"

"Yes."

Keane gained the summit and flew through the pass. Meat-hunters were hurrying out from Lubtown, no doubt to build up the larder before night. Beyond the last slopes, only a few hundred yards onto the ice, he could see dark forms moving in and out of the burrows. "Main hole?" he asked Gakkru. At Gakkru's nod, he headed that way, landed and slid back the canopy so the patriarch could squirm out.

Gakkru asked, "Where can I find you in the next few hours, George Keane?"

"I'll be moving around. Suppose I come back here in two hours?"

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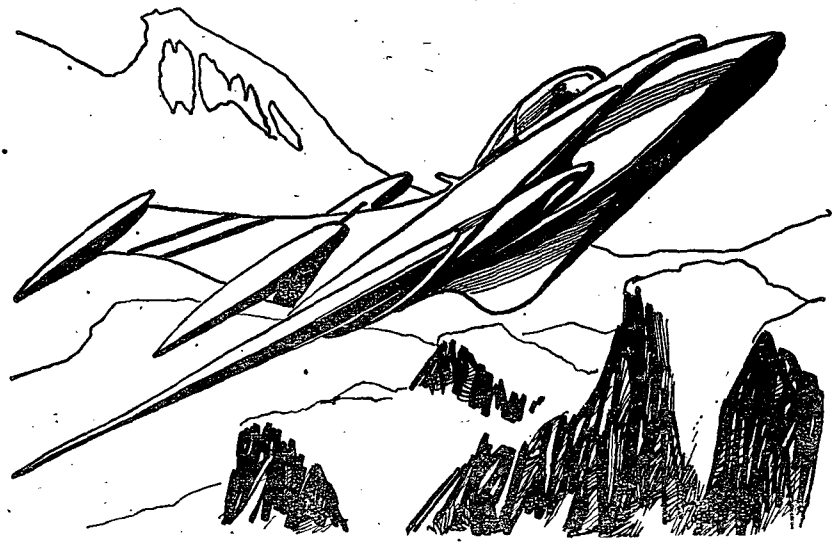

"That will be good." Gakkru looked down at the murder weapon in the flitter. "If I could take that —"

The Colonel handed it to him. "I may want to see it again."

"It will stay with me. Friendship, George Keane."

"Friendship, Gakkru."

Mantown — fifteen thousand men, women and children spread beneath fifty square miles of ice, so the city's general heat wasn't too concentrated — was some miles west of Lubtown. In between (purposely) was Keane's garrison. He noted, as he flew over the latter, the two squad flitters beside the tunnel entrance, parka-clad troopers in them.

He flew on to Mantown, where two more of his flitters were cruising slowly above scattered knots of people. There were fewer children out getting the sun today than usual; no doubt the rumors had scared their parents. He put the flitter into a circle for a look around before going down. To the west, the afternoon sun was a blinding glare on the ice. Northward, above the dark masses of the Gale mountains, the sky was brilliant blue; no sign yet of the blizzard. At the spaceport (a mile north of Mantown) the spaceship *Hermes* rested like an enormous hockey puck; the only ship on the planet just now, or near it.

Some black dots on the ice, twelve miles or more north, held his attention for a minute until he decided they were not vehicles, but animals of some kind migrating. He switched on his command radio channel for

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a minute, heard nothing to worry about and slanted down toward Main South Entrance. His picket-flitters swerved toward him, then turned away as they recognized his craft. He eased into the tunnel mouth, past civilians and a squad of his men afoot, flew above scattered crowds for a quarter-mile and turned into the side-tunnel leading to the Terran Factors offices.

Paarensen was at his desk running thick fingers through his blond hair and barking orders into a desk communicator and three or four walkies. He saw Keane, snapped, "Busy," into the communicator, leaned his chair back and scowled. "See Big Daddy?"

"Yes."

"Well, what did he say? Deny it?"

"He's looking into it right now. Paarensen, you'd better check into something he told me. Jonno was peddling Frenet cells a few hundred miles west."

The chair-legs hit the floor. "No!" Paarensen's cold gray eyes narrowed in thought for a moment, then he was on his feet. "Come on!"

Thirty minutes later, Keane and Paarensen stood staring at a dozen empty insulating cases that had been replaced at the rear of a pile of full ones.

The cells — the size of grapefruit — were packed six in a case, in a single row, with two inches of insulation around each. A close inventory was kept, but evidently the clerks had been simply counting cases without helfting them to see if they were full.

Paarensen kicked at one of the empty cases. "The stupid bums!" He pulled a walky from his pocket. "Security Chief! Who? I don't care whether he's on duty or not! Get him down to Stockroom Nineteen right now!" He thrust the walky back in his pocket and turned sourly to Keane. "You any idea what those things are worth? How the hell does Big Daddy know it was Estes, and why didn't he say something before now?"

Keane said, "Forget that. Did Jonno have access to this storeroom?"

"Hell, no. He was on the payroll as a prospector."

"Well, then, he had accomplices. Can you pin it down to a limited number of men?"

Paarensen paced a few steps, scowling. "The thing could have been going on for a year. In that time, twenty men could be involved — some of them already rotated back to Earth." He glanced at his chronometer. "I can think of two, damn it, who've just left on *Hermes!*"

"No, they haven't," Keane told him, "I put a hold on her."

"Huh? Why I had a consignment of . . . hm, maybe you're right. Well . . . Where's that damned Security Chief? What I wanted to tell you, Keane, is that a couple of my men out in a flitter saw a Lub up near where we found Jonno, about the time he must have been killed. I'm having trouble with some of the crews. They want to raid Lubtown and teach them a lesson. I'm not sure, now, it isn't a good idea. You going in to look for these Frenet cells, in case Big Daddy's lying?"

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Keane hesitated. "I may, depending on what I hear from him. But if they were stolen over a period of time, we wouldn't have much chance of finding them. And I believe Gakkru when he says his own tribes weren't involved. He thought only a few had been traded."

Paarensen muttered his doubt. "Anyway, more about Jonno: he left in a small ice tractor, not on foot. He had bundles. Damn it, those could have been some of the Frenets. It begins to add up — see? He got into an argument with some Lub, whether it was one of Big Daddy's or not, about the price. And the Lub killed him and took the cells." He stood looking at Keane for a minute. "I found something else. Jonno had been bribing somebody — no doubt somebody off-planet by now — and shipping out ten times his hunter's quota of furs, under faked names. I'd never have suspected *him* — such a mild old buzzard."

"Yes," Keane said. "Well, if you're right, when we find the cells we'll find the killer. I hope you'll make it plain to your crews that Lubtown's probably not guilty."

Paarensen pondered and finally said, "All right, I suppose I should. But you'd better come up with something."

From Terran Factors, Keane went to the city offices, radioing ahead that he was on the way. Most of the tunnels held knots of people, and around the city offices there was a virtual mob. His own squad of eight men on duty there was taking a certain amount of jeering. He radioed Kipp to send two more squads, with riot guns, just in case. Then he went in to see the City Manager.

Sam Willer was a dark, slight man who didn't talk much, but who made sense when he did. Now, in the privacy of his office, he wasted few words. "Colonel, I know you have other problems, but I thought you ought to know this. I don't know what's causing it — volcanic activity, maybe — but the temperature of the ice throughout Mantown's been going up. Four days ago it was up a quarter of a degree. Each day since it's accelerated, until now it averages nearly three degrees above normal."

Keane had trouble getting his mind on the thing. "Three degrees, eh? That still leaves quite a margin below freezing."

"Yes, Colonel. But — this is strictly in confidence — my engineers have no idea where it'll stop. If the ice actually melted, we'd be wiped out."

Things clicked suddenly in Keane's mind. "God! Willer, listen — would a few dozen Frenet cells, scattered around the city, do it?"

Willer turned pale.

III

Before going to keep his appointment with Gakkru, Keane stopped in to brief and bolster Kipp. "Know what a Frenet cell is, Lieutenant?"

"Well, sir, I know it's some kind of small reactor, to produce heat, but I never saw one."

Keane told him, "It's about this big — a hollow, metal sphere filled

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with something like metal wool and with a small pool of liquid fissionable alloy. That is, it's liquid up to a certain temperature. Above that, it vaporizes and spreads into the metal wool, which acts as a damper and stops the reaction. It will produce heat just about as fast as you can conduct it, or radiate it, away. To store one, you simply encase it in a good insulator. It stays hot and keeps itself shut off most of the time. It can be stored for centuries that way.

"They're used for mining in the ice, here, where it's not too deep. You drop one on the ice, and it melts its way down. There's just a small hole, and that freezes over behind it. When it hits something solid, that stops it; it begins to melt a submerged pool. When that gets to equilibrium size — or usually before — you drill down, pump out the water and recover the Frenet cell. Then you've got yourself a good big chamber to fill with breathable air, and you go down and mine."

"I see, sir. Neat. Is there some connection with this murder?"

"I think so. Anyway, the killing's not important now. Somebody's sown Frenet cells all around the city — some time ago — and right now we're sitting over a hot pool and God knows what pressure of steam."

Kipp looked bewildered. "A hot pool, sir? It seems to me it would take an awful lot of Frenet cells, or anything else, to do that!"

Keane told him, "You don't realize how much total energy there is in one of the things. Now, what we're faced with in a matter of days — if the pressure doesn't blow us all to hell first — is that the ice in Mantown will melt. The city will pop to the surface like a cluster of balloons. Only these balloons will burst — the insulation in the tunnels and chambers isn't strong enough or flexible enough to take it. And of course anything heavy, such as air-rectifying machinery, will sink. Do you see the picture?"

Kipp's face showed that he did. "But — surely we can dig them out, of something!"

Keane shook his head. "Even pinpointing them would be impossible, spread over the area they are. Anyway they're a long way down — nobody knows how much ice there is under Mantown or how much of it's melted by now. And if you *could* drill that far, without the ice pressure crushing your shaft-casing, you'd get a geyser for a while, then the whole area might collapse. Another interesting theory is that it might happen so suddenly we'd all get parboiled."

Kipp was ashen now. "What are we going to do?"

"We're going to dig emergency quarters in a hurry and transfer as much vital equipment as we can and move. I'm going to see Paarensen again — Willer's with him now — right after I talk to Gakkru. Paarensen will know, better than anyone, what's possible and what isn't. Now, for the time being, keep this quiet. A panic won't help. And *you've* got to sit on things — here, in Mantown and at the various outposts, while I'm busy. All right?"

"I'll try, Colonel."

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Keane started out of the office, but before he got past the switchboard the girl corporal on duty said, "Colonel, excuse me, a Mr. Akers is in the anteroom. He insists on seeing you."

Keane glanced at his chronometer. "Damn it . . . Oh, all right; as long as he's here."

Belden Akers, captain and owner of the *Hermes*, was a man in his late forties, quite tall, beefy-faced, with a considerable paunch. It was probably inevitable, and surely apt, that he was called "Belly" Akers. He started as soon as Keane was in sight. "Colonel, blast it, I've been trying to find you for two hours. That adjutant of yours won't give me any satisfaction at all. When are you going to let me lift out of here? What's this local crime got to do with my ship? I've got assignments to deliver, promise dates and penalties if I don't meet them. I don't see why —"

Keane cut him short. "Akers, you've been tramp-shipping around long enough to know I can't clear your passenger list with an investigation pending. How many are there?"

Akers looked slightly triumphant. "Sixteen. Can't you just hold them and let me go? Terran Factors will have four ships of their own in here in a couple of months. You'll have this murder cleared up by then, and these sixteen people can rebook passage. I'll refund full fare; and *you* ought to pay per diem if there's any inconvenience, and —"

Keane interrupted impatiently, "I might have done that, but I haven't even had time to go to the men's room, and now something else has come up. I can't talk about it now, but we're going to need your ship's power and air-machinery. You're commandeered until further notice. We'll compensate you for everything. I'm declaring martial law, as soon as I have a minute to write a proclamation. Right now I've got to go. Get your crew together and sobered up and just *sit*. And don't say *anything* to *anybody*!" He turned and walked away, aware that the pressure are beginning to get his nerves.

Gakkru was waiting at the same burrow. He was terse about the amenities, then: "I will show you a thing, George Keane."

He led the way toward several Lubs, half a mile from the burrow, who seemed to be digging in the ice. The natives, as Keane approached, eyed him with strong hostility. With a shock, he saw two Lub corpses on the ice. This was a burial.

The grave was being melted out the Lub way. Each worker had a hollowed-out tree shoot, packed near one end with burning dry moss (the same material they used for the scant warmth in their burrows). Blowing in the other end directed the flame against the ice. They cut annular grooves, then broke out the centers. It was slow; small wonder a Frenet cell was a real treasure to the Lubs.

Gakkru rumbled something to the workers, and they turned back to the job, sullenly. The patriarch moved over to the corpses and turned one face down to show a bullet

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hole in the back of the skull. "You asked me, George Keane, to find out whether one of my people killed Jonno Estes. Now I ask you if men killed these?"

Keane, shaking with anger, blurted, "I . . . On the face of it, yes. They'll be found and punished. I promise you that!"

Gakkru turned and strode back toward Lubtown. "I hope so," he growled, "I am having opposition from my own people."

Keane pulled himself together. "I think you know how sorry I am. But here is something. A Lub was seen near where Jonno was killed and about that time. How about the tribes to the west? Wouldn't it be a long way for them to come?"

"A long way, yes, but not impossible. However, we have seen none." He looked at the Colonel through narrowed eyes. "The Frenet cells. I think, George Keane, you and I both have bad trouble."

"Worse than you know," Keane told him. He described the threat to Mantown.

Gakkru stopped walking and looked at him. "Who would do such a thing? And why?"

"The only thing I can see," Keane said, "is that someone wants a real calamity, so that . . . well, damn it . . ."

Gakkru rumbled low in his throat. "Yes. I see. It will be blamed on *us*. On Lubs. And then these laws you say are to protect us will be changed again, and as before we will see less of honest Terran trade and more Terran tricks and more Terran bullets. Is that it?"

Keane faced up to the massive fury, trying not to flinch. This, he thought fleetingly, is one of the problems — Lubs are so damned big, people are simply afraid of them. "That's about it," he said. "You understand, many other planets than Mellunde and many native races are under the same law. I can't believe that Terran Factors is behind it, but the companies that were here before are very big and very powerful, and they have spies and agents everywhere. I don't think Paarensen's one of them."

Slowly, Gakkru's anger subsided. Finally he said, "I almost wish, now, that I could tell you one of my people killed Jonno. It would make things easier. But I cannot. There is no sign that any Lub of my tribes was trading illegally with Jonno or that any of us were near when he died." He ambled in silence for a way. "This matter of a strange Lub. That is something to think about."

They reached the burrow, and Keane steeled himself for something he hated. "There's something I must ask you. We'll have to dig emergency quarters, probably on the other side of the spaceport, at once. With a blizzard coming, men won't be able to work much outside. Will you let us hire your people to do the work? We'll pay well."

Gakkru looked at him for a moment, faint irony in his expression. "The law says Lubs must not be hired to do directed work."

Keane, face red beneath the parka flaps, said, "I can suspend that in such an emergency."

Gakkru suddenly softened. "Of

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course we will help. When will you want us? How many?"

"Tonight; as soon as we can get rigged. About five hundred."

Gakkru waggled his head. "I had better start talking to my people."

When Keane arrived, Paarensen had already gotten over his shock at the news and was on the communicator, mobilizing men and equipment. He reached a pause and scowled up at Keane. "I suppose you know there's a blizzard due."

Keane nodded. "I have Gakkru's promise he'll supply Lubs to help."

Parrensen looked startled. "Well! That will make the difference! But I don't know . . . After the Estes thing . . ."

Keane almost boiled over. "Listen! Somebody shot two Lubs out on the ice. There was already a curfew on the town, so it must have been men from one of the mines. Now in view of our need for Lub help, I want you to find out who it was and bring them in. I've got to assure Gakkru they'll be punished."

Paarensen leaned back and eyed Keane narrowly. "Yeah? How about the murderer of Jonno Estes?"

Keane said, "We don't know for sure that a Lub killed him; and anyway, it's very unlikely it was a local one. *Men* killed the two from Lubtown. There's no doubt about that."

The superintendent demanded, "How can you be so sure? Why couldn't strange Lubs have done that too?"

"Damn it," Keane snapped, "I know a bullet hole when I see one! Not a Lub has a rifle."

Paarensen smiled coldly. "Oh, I don't know. How about the rifle Jonno was carrying?"

Keane's mind spun for a minute. "Damn." He felt himself flush. If he'd had a few minutes to sit down and think . . .

Paarensen said, "Anyway, that doesn't matter now. I'll look into it. Meanwhile, I've been checking on what equipment I can muster, and Sam's got an inventory of city supplies. We're short of insulation. We'll have to strip city compartments and tunnels, remelt the insulation and spray it on the new quarters. Food, we can handle. The air machinery's the big problem. Some of it'll have to be torn apart to be moved, and putting it back together will be slow."

Keane said, "I can spare some small units from the garrison. And can't we rig something temporary? Taking a little carbon dioxide out of the air oughtn't to be hard."

Paarensen frowned. "Not on a laboratory scale, no; just bubble the air through limewater, for one thing. But it would take days to build big-scale equipment. I'll check on that, though. Another thing — we'll need lights, a hell of a lot of them, and generators to supply power."

Keane said, "I told Akers we'd need his ship's power. Would you want her moved out to the location?"

Paarensen thought a minute. "No; we'll be close enough to the port to run a cable."

Sam Willer said, "I have twenty small generators that have never been uncrated. But they're not on wheels."

Keane suggested, "Could we put them on sleds?"

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"Yeah," Paarensen said. "Good heavy sleds, made of big logs. Tractors can pull them around." He looked at a wall clock and reached for the communicator. "Ed? Say, send a couple big flitters down the mountain with crews to cut a hundred logs; oh, say, two feet diameter, twenty feet long — before dark. Huh? Do it anyway, damn it! Lift them up to the north edge of the spaceport." He switched off. "Damn; so little time . . . We can use some of those logs for lightpoles." He looked at Keane. "Have you got a good estimate on that blizzard "

Keane reached for his walky. "Switchboard. Who's on duty? Oh, Corporal; what's the last word on the blizzard, and how recent is it?"

"Just a moment, sir." Papers rustled. "Here's a report from North Outpost about twenty minutes ago. The wind was beginning to hit them. They estimate it'll be here an hour and a half after sundown. It's a bad one."

Paarensen grunted. "We'll need a little time to show the Lubs what to do. I'll have foremen on the site before sundown, Keane. Can you get the Lubs there by then?"

Keane got to his feet. "Some of them, I guess."

Paarensen said, "You can spare a few more minutes, can't you? I've got steaks and real coffee coming in. We may not have much chance to eat tonight."

IV

Sunset had turned the icefield golden; then the Mellunde dusk had brought its shades of turquoise and blue and purple. Now, as full darkness fell, Keane, with a sergeant driving, bumped over the ice in a low closed tractor — practically a tank — watching for any signs of trouble. Already the wind was beginning to hammer on the thick windshields.

He'd felt better for a while, with solid food in him, but there's been this problem and that. At least, he'd gotten two hundred Lubs to the site, with Gakkru promising more soon.

The work area was a fantastic panorama in the clear night. Thirty or more of the stout logs had been erected — a third of their length in the ice — and storm lights fastened securely to their tops. Into and out of the islands of illumination moved tractors, large and small, squat derricks on wide treads, the few melting-machines Paarensen had, men bundled to awkwardness in layers of clothing and the Lubs. Mostly, so far, cables were still being laid and lashed to the lightpoles, but already a few pits were begun. The first stage of digging would be to get slanting tunnels down to the right level. There, horizontal drifts would fan out, and chambers would be hollowed. Once protected, and with kitchens and air machinery working, crews of men could continue work.

As if angered at the thought, the wind struck harder, heeling the tractor over. The sergeant driving shook his head in concern, shifted to a lower gear and pumped more pressure into the hydraulic system. The tractor jolted worse that way, but didn't list in the wind.

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The drumming on the hull became a keening, then a shriek. Now, suddenly, hail pelted the glass and steel. That passed quickly, and the snow came; a curtain of horizontal white ropes, it seemed, piling up in an instant against the whipping cables and the bases of the poles, blowing away in sudden spurts only to be replaced at once. Visibility was only yards. Vaguely, Keane could see the nearest men, clinging desperately to cables or lifelines, fighting their way to the shelter of heavy vehicles or the shallow pits. A Lub moved by, carrying some tool, leaning almost forty-five degrees against the wind. He stared for a moment into the tractor's headlights, from eyes that were no more than furry slits, then moved on. The way the wind blew his fur about and slammed snow into it, Keane wondered that it didn't come out. But the hulking native showed no discomfort or concern.

Keane leaned nearer the sergeant shouted, "Move north and go along the line. Let's turn off the headlights and use the snooper."

The sergeant complied. The snooper was a beam of infrared that swept back and forth or circled, invisible without special viewers. There were goggles; but instead of wearing those, Keane and the driver watched a viewscreen that showed whatever the infrared illuminated. Colors were all off, of course — the ice looked black, where it was swept clean of snow — but the infrared penetrated the blizzard a little better than visible light. There was another reason Keane was using it. His particular tractor was to patrol the northern edge of the worksite, and he didn't want his location at any moment given away by headlights.

Paarensen had lined up his heaviest closed vehicles, east and west, along the northern limit of the site, as a sort of anchor and to give what lee they could. From these, power cables and lifelines stretched into the work area, whipped about now by the wind. Now and then Keane caught a glimpse through momentarily thinner snow of someone hauling himself along a lifeline or letting himself be blown down it. A few Lubs still walked about. But by now most of the Lubs and such men as were still out were in the shelter of the pits they were digging.

Keane worked his way east along the line of vehicles, behind it where no spotlights hit him. He was near the end when, at the very limit of the snooper's illumination, something dark moved.

He put out a hand to the sergeant, who stopped the vehicle. Keane turned the beam back manually, found that object and held it; he turned up the intensity. It was a Lub form on all fours, plodding from the north toward the line of tractors. It wore no harness. The sergeant said something inaudible as Keane reached for a walky.

"Paarensen," the Colonel called, "Paarensen." The static was very bad.

The superintendent finally answered. "Keane?"

"Yes. I see a solitary Lub out here, behind your line, about — oh, near the eastern end. He doesn't act

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like one of the workers. He's —" Keane stopped to turn the beam a little.

Simultaneously, the shaggy head swivelled in their direction. Slitted eyes stared for a moment, then the creature broke into a run (Lubs could move fast when they wanted to) straight toward the nearest large vehicle. Keane jerked a look at the sergeant, but the trooper was already jamming down the accelerator. The tractor lurched forward. Keane pressed his face against a side window, hoping to see the running creature in a spotlight from the big vehicle, but he didn't. They came abreast of the vehicle, and he swivelled the beam back and forth, searching. Something, deep in the snow? No — it was a man coming up a lifeline. Keane gestured to his driver, who wheeled the tractor around and sent it in an arc, east and then north and around. But the Lub was gone.

The sergeant shouted, "Could it see us, sir?"

"I don't think so," Keane shouted back. "Maybe it felt the infrared." He picked up the walky he'd dropped on the seat. "Paarensen?"

"Here. Where the hell did you go?"

"It sensed us and ran. I think we chased it away, but you'd better have your men on the alert."

Static and profanity came back. Then, "The men in the open couldn't hear a walky, even if they had a free hand to hold one. I'll tell the men in the vehicles to keep watch."

Keane let it go at that, but he called one of his other tractors. "Sergeant Cato? Cato?"

Finally, "Cato here, sir."

"Sergeant, bring your tractor up to the north side and help me patrol. Be on the lookout especially for a furtive, solitary Lub, but also for anything else. Use the snooper and show no lights. Tell the others you're leaving."

"Right, sir."

After that Keane, using the tractor's more powerful radio, was able to reach HQ. He told Kipp what had happened then asked, "Any trouble in Mantown?"

"Not really, sir. Your proclamation of martial law sobered people. Of course they're pretty scared about this ice temperature, and —"

"*Ice temperature*? You mean that's got out?"

"Yes, sir. The rumor was around that the Lubs had scattered the things, but I put out a bulletin saying the Lubs had no access to the storerooms. Did I do wrong, sir?"

Keane sat in angry thought. So someone had spread the rumor and added the lie about the Lubs. "No," he told Kipp finally, "you did right. But be especially watchful. A panic could start quicker than you think. How are the men taking all this?"

"Fine, sir. I took the initiative of getting all their dependents quietly out of Mantown and here to HQ. That's helped."

"Very good idea, Lieutenant. How about you? Have you eaten?"

"I had sandwiches, sir."

"All right. You'd better put a good man on your desk for a while and get a nap. This may be a long night."

"Thanks, Colonel, I'll do that."

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Keane cruised back and forth a couple of times, meeting Cato's tractor the second time. They could talk well, this close. Neither had seen anything.

The general static, though, was worse then ever, and Keane was minutes slow in recognizing a hubbub on the common band. What he did hear, first, was Paarensen shouting, "Into the vehicles, damn it! Get your men into the vehicles!"

He shot a glance at an indicator, saw he had no direction fix on Paarensen. The sergeant, thinking for himself, whipped the tractor around and went churning back toward where they'd seen the furtive Lub. They reached a tractor with all its lights on and swinging. Four or five men were helping another, injured, along a lifeline. The light on the nearest pole was out. The radio was a babble now. Kean shouted, "Paarensen! What's going on?"

Paarensen must have been close; his snarl was clear. "A massacre, that's what's going on. You and your damned Lubs. Where've you been?"

Keane sat stunned for a moment, then seized his driver by the shoulder and pointed south. The tractor spun and went that way, snooper-beam swinging ahead. They swerved hard to avoid a shallow pit (deserted), found a cable and followed that to avoid the pits. Once Keane saw a pair of Lubs with harnesses galloping away south east on all fours. He saw one Lub and one human corpse, each already nearly covered with snow. There might be other bodies in the pits, of course. "Paarensen! I'm in the middle of things, and it's deserted. Just how many men were killed? How many are still out?"

The superintendent snarled, "How do I know, damn it? Everything happened like an explosion!"

Keane said, "Damn it, didn't *anyone* actually see anything?"

A passionate voice broke in, "*I* saw something! I was in a pit with my foreman and three Lubs. A bunch more Lubs came by, carrying bows, and grabbed at our Lubs, and they took off. My foreman grabbed one and tried to stop him. The Lub swung at him and broke his neck."

A calmer voice, farther away, said, "Somebody shot out the light on my tractor. With a rifle or pistol. Then I saw those big arrows flying around the nearest lightpole, and that light went out too. I had five men out. A couple made it back; and I heard another on a walky, but he hasn't called since. I don't know anything about the others."

Other reports poured in, some wild, some meaningless. Keane broke in, "Where are the Lubs?"

Paarensen said, "It looks as if they all headed for Lubtown. No doubt to get weapons. I hope you have Mantown guarded."

"It's guarded," Keane snapped. "What I want to know is exactly what happened here? How did it start? Did any of your men have guns?"

"Hell, yes," a hot voice put in. "One of the big ones came for me with a knife, and I emptied my pistol in him!"

Paarensen said, "What difference does it make now, how it started?"

"It makes the difference," Keane

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said, "whether anything can be salvaged. What kind of idiots are you? Now all of you stay put, understand? I'm going after the Lubs."

V

The blizzard, of course, would quickly hide any trail in the snow. However, it hadn't yet covered the four Lub corpses Keane passed on the way. They'd evidently been wounded, but kept up with the bunch until they fell.

Presently he was so close behind the main group he could still see a trail. The sergeant slowed a little. Nevertheless, when the tractor did overtake the Lubs, it nearly blundered into them. One minute there was the hurtling snow. The next, yards ahead, a wall of erect forms, backs snow-covered, loomed like a forest of statues. They were leaning back against the wind, keeping their balance with hardly a stir. Keane swept the snooper back and forth. Perhaps one in five carried a bow.

Well, they were stopped here watching something, and he'd better find out what it was. He switched on the headlights.

They whirled to face the tractor, darting to both sides, squinting at the headlights, grabbing for weapons. The wind deformed their features, but they all looked murderous. A few moved forward, crouched. Then, shoving his way through the pack, a supergiant among giants, came Gakkru. He recognized the tractor and scowled. Behind him came Bwult. The younger Lub trotted forward to stand, face contorted, a few

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yards from the tractor, and made the ultimate gesture of hate — thumb and forefinger, to represent fangs — against his throat. He couldn't see Keane in the darkened interior, probably, but he could read the name stenciled on the vehicle.

Gakkru took two steps and shoved Bwult aside so that he went sprawling. Bwult was up at once, screaming inaudibly at his father. Now, from the attitudes of the other Lubs, Keane guessed what had happened—the bunch returning to Lubtown had met Gakkru leading another contingent; Bwult and Gakkru had argued, and the tractor had arrived just then.

Bwult made a gesture; Gakkru made one back, and suddenly knives were out.

Keane groaned, "No!" Should he interfere? The cherished knife of ivory Gakkru carried would be no match for steel. And, while Gakkru was taller by two feet, and hundreds of pounds heavier, he was slowed by his bulk and his age. But it would be futile to interfere. Gakkru had taken to himself the challenge — or issued one of his own — and the Lub law was that one of the two must die. So Keane sat watching, his headlights shining on the scene.

Bwult, full of rage, attacked first. He came on all fours, darting to Gakkru's left, knife flashing up in a murderous arc. Gakkru anticipated, dropped aside at the last moment and had a big leg in the right place to send Bwult tumbling. But Bwult was up as soon as his father, and now the blind fury was dulled. He came in erect, coolly, weaving, feinting with the knife.

Keane had watched Lub knife-fights before. The one object was to kill. Whether the winner was badly cut up or not didn't matter. At this upright fighting, Bwult's advantage of mobility was greater than on all fours — and if Gakkru went to all fours while Bwult stood up, Gakkru's left arm would be busy supporting him, while Bwult would have his to parry with. There were a few minor cuts, quickly, on each side, the wind and snow whipping the blood away at once. Then Bwult got into position for a hack that had to be parried knife-to-knife. Gakkru made the parry, but a big chip of ivory flew from his blade to vanish with the blizzard. That, Keane thought, would probably be the thing. Sooner or later, the steel would cut clear through the ivory. Then it would be just a matter of execution.

But the end came sooner; so swiftly Keane almost missed it. Knives flashed in a pattern of threat and counter-threat, then Gakkru appeared to make a mistake, took a gash on the left shoulder and staggered a little. Bwult moved in fast, eagerly, and thrust. But from somewhere, Gakkru's left arm came up, deliberately taking the steel and whipping on to strike Bwult and knock him off balance. Now Keane saw that Gakkru had perfectly calculated the wind — his son could not retreat fast enough. Bwult's body hid Gakkru's expert up-from-below thrust, but Keane saw Bwult jerk, make an ineffectual swing with his own knife and go limp at the knees.

Gakkru, lower teeth showing,

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hurled his beloved knife off into the blizzard as hard as he could. Then he went slowly to all fours and was motionless, big head hanging. Blood gushed from his left arm. Presently two Lubs moved up, cutting at a leather pouch to make bandages, and knelt to bind up the arm. Others slowly dragged Bwult's corpse off toward Lubtown.

Keane wondered dully, now what. He couldn't seem to care much; his exhaustion was catching up with him. But Gakkru lifted his head and looked straight at the tractor. Slowly, the patriarch got to his feet and came forward. He pointed; then, as Keane didn't understand, pounded on a small hatch in the top, through which, when it was open, a man could thrust head and shoulders. The Colonel mustered enough spirit to open it.

Even with Gakkru's head blocking the hole, the scream of the wind was deafening. Keane stood up to catch the Lub's bellow, "Who shot my men, George Keane?"

Keane tried to find words, "I . . . don't know. I saw one Lub sneaking around, earlier, but he ran when he sensed us. Are you sure . . .?"

Gakkru must have guessed what Keane didn't want to ask. "My son did not lie. He did not start the trouble. I think, George Keane, if you want your people to live you had better produce this strange Lub."

His voice, so far as Keane could hear, was calm, but ominous. Keane said listlessly, "Produce him, eh? In all these square miles of blizzard?" Nevertheless, he reached for his walky. "Paarensen. This is Keane."

After oceans of static and a false start or two, Paarensen's voice came, weakly. "Keane? Where are you? Are you doing anything?"

Keane muttered curses. "Listen. Keep your men in the vehicles, but scout around without headlights there are lightpoles with lights still on. Be on the lookout for that strange Lub. Do you understand me? He'll avoid direct beams, but you might see him in silhouette. I think he's the one who started all this."

Paarensen said in disgust, "Keane, you're a complete fool."

"Maybe. But it's the only chance we've got. Gakkru's still ready to listen, if we can prove your men didn't start the shooting. He's just now had to — oh, hell, just do as I say. And get ready, as much as you can, to resume work." Without waiting for an answer, Keane switched to his command channel. "Sergeant Cato."

Faintly, "Here, sir."

"Round up the other tractors. Search the whole working area and a mile or two around it. No visible lights. Look for that solitary Lub — he's not wearing a harness — and if you see him, don't go too near. They seem to be able to feel the snooper beams, or something. I'll be somewhere around."

He got the acknowledgment and moved his head near Gakkru's. "Is your arm all right? I can take you over to HQ and get it sewed up."

"It is not bleeding now. This strange Lub you keep talking about. From which direction did he come?"

"North, when I saw him. Off the

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ice, I guess; or from the Gale mountains. Why?"

"Because," Gakkru said, "if he is from a foreign tribe, or if he's an outcast from one of mine, he will have a place where he lives. One does not eat and sleep out in blizzards."

Keane grunted ironically. "That only leaves —" He stopped, suddenly hit by an idea. "Say! If he killed Jonno Estes and stole his rifle . . . Do you know where that cave is that Jonno was supposed to have?"

Gakkru blinked. "Yes! That is a good thought! Let us go there and look!"

Keane said, "We'll turn the tractor so the main hatch is down-wind. If you can squeeze in —"

Gakkru said, "I can ride comfortably on top. Wait a minute." He beckoned to several Lubs. While he was talking to them, snow swirled madly in and out of the unprotected hatch. Then the tractor rocked as Gakkru climbed atop it, and again his big head blocked the hatch.

The radio brought no news Paarensen was getting his men calmed down, though, and gradually compiling a picture of what had happened. Four or five lights, it seemed, had been shot out with rifles or pistols. No one had seen the marsman or heard the shots. Shortly thereafter, Lubs and men, in a mutual explosion of hate and fear, were killing each other. It was obvious that someone had rallied the Lubs and led them away, no doubt to arm themselves and return. The actual deaths on each side were apparently few. But work was stopped. Gakkru, even after hearing what details were known, refused even to talk about possible resumption until (and if) the foreign Lub were found.

The tractor jolted northward at top speed. There were about fifty-five miles to go; north to the Gale mountains, then eastward along them until Gakkru found the right spot. The miles dragged. At times, Gakkru's weight shifted; at others, he might have been dozing. His furry odor and the smell of his blood filled the tractor. The sergeant put thumb and forefinger to his nose in pantomime and made a face. Keane frowned at him.

A short run, with improved visibility, then Gakkru said, "We are near. Turn up the slope, slowly, but do not show a light."

Keane said, "Oh, by the way, do you know about this snooperscope we're using?"

"Yes. I have heard it described."

"Well . . . could a Lub feel a slight warmth, as from a strong beam of light, in a blizzard?" He explained about the furtive Lub.

Gakkru let his lower jaw hang in thought. "Stop here. You can try it on me."

The tractor creaked and tilted; snow swirled into the hatch, and Gakkru appeared ahead of the vehicle. Looking back, he strode to what Keane presumed was the limit of the tractor's visibility and stopped. He stood a moment then started back slowly. Keane played the beam upon him.

When Gakkru's head blocked the hatch again, he said, "I felt nothing, George Keane."

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"Hm. Well . . ." Keane gestured to the sergeant to drive on up the slope.

The cave, no doubt cut by ancient water, was a few hundred yards up a bare ravine. The tractor stopped thirty yards from it. Gakkru, as he'd insisted, approached the cave on foot, listened, sniffed, peered and finally vanished inside.

A quarter hour dragged endlessly by. Finally Gakkru reappeared and beckoned. When the tractor reached him he leaned over it and said, "You can drive inside, George Keane. No one is home. But someone has been there recently."

The disappointing thing for Keane (and ominous, since Gakkru's mood grew darker) was that, according to the patriarch, there was no smell of Lub about the cave.

There was freshly-cooked food, though. There were also containers of water, a stove and energy-units, a heated sleeping-bag, air machinery. There was a viewer and a small library of tapes. Boxes of rifle ammunition might or might not have belonged to Jonno Estes. So might all the other things — except for the recent cooking, which proved someone had used the cave within hours.

Gakkru sniffed around the depths of the cave again, came back and said, "There is nothing more to be learned. I think we had better post ourselves just inside the mouth and wait."

"Wait?" Keane said unwillingly.

Gakkru's small eyes blinked at him. "Can you think of a better place to look? It is not many hours until morning. This stranger will want to be out of sight by then."

Keane sighed. "Damn it, I guess so. Well, as long as we're going to sit here, do you want to get in the tractor? Then we can talk without our voices carrying."

Hours dragged by. Then — before there was any trace of daylight to Keane's senses — Gakkru, leaning forward to peer through the thick windshield, growled, "Someone is coming."

Keane snapped awake. Unable to resist, he switched on the snooper at low intensity and swept the beam once in a quick arc. It passed over something large and dark. He swung it back, stopped it, ready to switch it off hastily if the object showed any reaction.

But it did not. It was a Lub form, trudging up the ravine, eyes on the solid rock ahead of it. Keane glanced once at Gakkru, saw the overchief's eyes narrowed almost shut and laid his hand on the aiming-grip of a gun that would fire anesthetic bullets.

Gakkru must have guessed that. He growled, "Use a deadly weapon, George Keane, and a strong one."

Keane sensed something in the voice and darted another quick look at Gakkru. "Why?"

Gakkru said calmly, "That is not a Lub."

Keane, uncomprehending, stared back at the advancing figure, which was within forty yards now. And suddenly he noticed something that made him gasp. From the shaggy head a weak beam of light fanned out.

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But . . . He was seeing it *through the snooper viewscreen!*

Suddenly things came clear in his mind, in a flash. His hand darted to switch off their own beam. God; it was lucky the advancing thing hadn't spotted it already! Then his hand dropped to the control of a heavy machine gun. This thing could only be a suit — a servo-powered-and-controlled suit, with room inside for a man to operate it; it was made to look and move like a Lub. But with radio and infrared vision of its own.

Gakkru growled, "Shoot! Shoot! Many have died tonight!"

Bullets spat from the gun. The object didn't take them like anything animal. It jarred a little, halted, stood motionless for a moment, then, pushed by the wind, began to fall backward. It hit the rock and lay still.

By the time they'd dragged it up to the cave and got it open, Keane had realized that such an artifact could only have been built on Earth or one of the other advanced planets; so he wasn't much surprised to find the bleeding corpse of the *Hermes'* skipper and owner, Belden Akers.

VI

A few days later, when various problems had been ironed out and the relocation work was going well, Keane stood in crisp, brilliant sunshine just outside Gakkru's main burrow, saying good-bye. The patriarch's arm would probably recover fairly well.

Keane said, "Lieutenant Kipp held up *very* well during the whole thing, and he's a fair-minded man. You can trust him."

Gakkru waggled his head absently. Keane supposed it was no wonder the patriarch acted listless and older.

Keane went on, "I hope you understand — not everyone does — that the best thing I can do is get to Earth as soon as possible and report first-hand. The interest behind Akers and the mine foreman who helped him — Gus Leitner — will be in with their lies and their pressures."

Gakkru's small eyes focussed on him. "I understand, George Keane."

"Well . . ." Keane, with nothing more to say and feeling uncomfortable, half turned to go, but turned back. "Friendship, Gakkru."

The big face twisted, and for a moment hate broke through. "I do not blame you for anything that has happened, George Keane. But you are a man." A pause. "Jonno Estes, too, called me friend."

Keane said defensively, "They made a cat's-paw out of him. I'm sure he had no idea —"

Gakkru rumbled in his throat, then said, with a tone of dismissal, "Maybe I will feel differently by the time you return from Earth."

"Yes," Keane said, "when I return." He made a small gesture with his hand; turned and walked away, zipping up his parka against the icy wind. He very much doubted he'd return to this planet. Earth Government would accept his version; but there'd be a fuss, and someone would have to be the goat. But he didn't know if he'd want to return.

END

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Report on the Slow Freeze

by R. C. W. ETTINGER

Since Ettinger's first piece on freezing appeared here in 1963, progress has been slow. Here are a few reasons why!

1964 and 1965 were years of high tragedy and low comedy. It was tragic — perhaps — that while so many heard of cryogenic interment, so few understood the opportunity; and it was tragic — certainly — that several who did understand the opportunity were not quite able to grasp it before death intervened. And it was ludicrous — if your taste runs to black humor — that many with an apparent intellectual grasp of the situation blandly ignored the personal implications.

Some are amazed at the failure to freeze a single corpse (publicly) before 1966; others are astonished at the extent and general sympathy of continuing public interest. I think I can account for both, and the accounting may be useful.

For the benefit of those who still have only a vague and superficial acquaintance with the thesis, let me state it briefly. It is proposed to freeze the newly dead, using a chemical perfusate to reduce freezing damage, and store them at liquid nitrogen temperature (--196°C or –320°F), which will prevent appreciable further deterioration indefinitely. Eventually, it is hoped, science will be able to cure or repair the ailment that caused death, and also the effects of a short period of clinical death, and also the freeze-store-thaw damage, and even the physical debility of old age; thus a prospect of indefinitely extended life is given to us now living and to those now dying. Some further details will emerge in the discussion

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below of recent events; at this point, it may be appropriate to note a little history.

Genesis of the Idea

Cryogenic interment had never been forecast in science fiction, as far as I know. Suspended animation, of course, is a well worked lode; but this involves freezing or other treatment before death, with the subject revivable at will. I recall only one story in which a man was frozen after death and later revived: "The Jameson Satellite," by Neil R. Jones, which I read perhaps thirty years ago. But the freezing here was incidental, and the revival accidental (millions of years later, by wandering super-scientists of an alien race); there was no suggestion of a planned, systematic or general effort, nor any familiarity with cryobiology (low temperature biology).

The idea came to me in 1947, after Jean Rostand, the renowned French biologist, discovered the protective effect of glycerine in freezing animal cells. In an Army hospital at that time, I embodied it(but did not emphasize it) in a science-fiction story, "The Penultimate Trump," which was published in the March, 1948, issue of *Startling Stories*. Then I waited for many years, momentarily expecting someone with better credentials and more prestige to introduce the Freezer Era. In 1960 (while a physics instructor at Wayne State University in Detroit), I summarized the thesis on one page and sent this to a few hundred people selected from *Who's Who,* but received only a small response. In 1962 I prepared a preliminary version of *THE PROSPECT OF IMMORTALITY* and sent a couple of hundred privately printed copies to various people, including Rostand and Frederik Pohl.

Rostand himself, a few years earlier, had predicted that one day the aged, as well as the incurably ill, would be frozen to await help; but he had not taken the next step, involving freezing after death and accepting some degree of freezing damage. He immediately recognized the validity of this logical extension and suggested an article on the subject, which was published in the May, 1963, issue of *Science et Vie*. He also was kind enough to write one of the prefaces for the revised and expanded version of THE PROSPECT OF IMMORTALITY, which was published by Doubleday in June of 1964. The second preface was written by Prof. Gerald Gruman, a physician and historian of science at Lake Erie College. Fred Pohl, meanwhile, had published excerpts from the first version in the June, 1963, issue of *Worlds of Tomorrow* and, at about the same time, had arranged for the first radio discussion, on Long John Nebel's midnight talk-show in New York.

Several other people — possibly many others — had had the same idea independently. In particular, Evan Cooper in Washington, D.C. had presented it to a small discussion group called "Twentieth Century Books," and in 1962, after some years of thought, privately printed a book called IMMORTALITY:

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PHYSICALLY, SCIENTIFICALLY, NOW (under the pen name "Nathan Duhring"); and Dr. Lawrence N. Jensen, then chairman of the Art Department at Castleton State College in Vermont, was doing research for a book. The publicity attending my book brought us together; and early in 1963 we met in Washington, and the Life Extension Society was formed with Ev Cooper as president.

Organizations and Personalities

Interest in THE PROSPECT OF IMMORTALITY has been very wide (if seldom deep) and continues to mount. The book has been published in England, France, Holland and Germany as well as in the U.S., and an Italian edition is forthcoming. An American paperback edition (Macfadden-Bartell) is now on the stands. There have been hundreds of articles in publications the world over — many through my wife's skill in media relations — and scores of TV and radio discussions, including several occasions each on such shows as Merv Griffin's, Johnny Carson's *Tonight,* and Mike Douglas'. Although the issue so far may seem rather puny, the mountain continues to labor, and some of the mice are lively and determined little creatures.

The oldest and largest of the nonprofit organizations promoting cryogenic interment is the Life Extension Society (2011 N St. NW, Washington DC 20036; send for brochure), with something over 400 members in January of 1966. Ev Cooper, who fortunately has independent means, devotes full time to the work without remuneration. His wife, Mildred, has made many contributions, including a new name for the frozen, brittle people: Homo Snapiens. (This is certainly more dignified than Fred Pohl's "corpsesicles." I think it was also she who summarized the recent situation by saying, "Many are cold, but few are frozen." Other active members include: Dr. L. N. Jensen, now chairman of the Art Department at Southern Connecticut State College; Prof. E. W. Walton, who teaches Greek and Latin at Converse College in Spartanburg, S. C., and his wife Judi, who has been doing some cryobiological research; James Clancy, an insurance salesman, and R. C. Payne, a biology teacher, of Montreal; Michael Hart, a New York attorney; Thomas Tierney, a G. M. employee, and Richard Jones, an actor and writer, in Los Angeles; Alan Worsley, a psychology instructor at the University of Hull in England; Marc Collet and Dr. Emile Leclerc at Nancy, France; and many others, including physicians, scientists and clergymen.

One of the newest and most active nonprofit organizations is the Cryonics Society of New York (corresponding secretary Saul Kent, 2083 Creston Ave., Bronx, N.Y. 10453; send for brochure). It split off from LES (although its members remain LES members also) through activist sentiment; the feeling was that too many LES members merely paid their $2 yearly for the monthly newsletter and did little else but kibitz. C.S.N.Y. demands a $25 initiation

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fee and $10 annual dues and expects members to make definite personal preparations for cryogenic interment, including the purchase of adequate additional life insurance (or other earmarking of funds) and the drawing of suitable wills, execution of trust agreements, etc. They hope in 1966 also to prepare integrated physical facilities in the N.Y. area. Some of the earliest members include: James Sutton, a private detective; Harold Costello, a wrestler; attorneys Prof. David Haber of Rutgers, Curtis Henderson and Nathaniel Janes; students Saul Kent and Karl Werner; and others including an associate professor of physics at Columbia and an associate professor of chemistry at N.Y.U., as well as business people, housewives, *etc.* (It is interesting to note also that all age groups are represented, from college students to very senior citizens.)

Among commercial organizations, the one most active recently is Cryo-Care Equipment Corporation (2204 W. Indian School Rd., Phoenix 15, Arizona); its president is E. Francis Hope, a wig maker who read in my book that his industry might not last. Working with physicists, Mr. Hope has built several human cold-storage units, or "cryocapsules," and has begun to sell them. Specifications on the first model were: capacity one or two people; price $3200; cost for replacement of liquid nitrogen $100/year. It consists of an inner cylinder of aluminum and an outer one of steel; between the two cylinders is a vacuum for insulation, as with a thermos bottle, and in the evacuated space are over 200 layers of alternate aluminum foil and fiberglass sheets to reduce radiative heat transfer. It does not depend on electricity, but merely requires recharging with liquid nitrogen once every several months. On the basis of the specifications asserted, and taking size into account, it appears to be more economical and more efficient than liquid nitrogen refrigerators made by the big companies such as Union Carbide.

Apparently less active, but still in the running according to information now some months old, is Juno, Inc. (1802 W. Pleasant St., Springfield, Ohio), led by New York businesman Leonard Gold. Juno has built and tested "time capsules" and was prominently mentioned in the news last spring when there was a near miss on cryogenic interment in Springfield. Mr. Gold says he plans only to sell equipment to funeral directors and cemetarians.

Another company is Continuelife Corp. (131 Avenue C, Latrobe, Pa. 15650), led by accountant Forrest Walters, who says he plans integrated services.

Still another seems to be called Technigenics, but my information about it is informal and should probably not be made public now.

There has been some fringe activity by kooks and con men, but less than might have been expected; and there have also been organizations that breathed but briefly and expired. There was an embarrassing episode in the San Francisco area when a group calling themselves the "Abolish Death Committee" picket-

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ed a funeral home and offered to run me for president," but this fortunately did not last long. "Americoin," a nonprofit division of the Civic Association of America in Hollywood, with very respectable people at the helm, last year had ambitious plans, but now seems to be quiescent. The Immortality Research & Compilation Association in Los Angeles has merged again with LES. Cryo-Life Corp. in Kansas City, Mo., after some brave predictions, apparently failed to obtain adequate funding. I have been approached by several get-rich-quick, would-be operators, some of them ludicrously crude and others rather impressively smooth. (This is not to imply that I object to anyone getting rich, either quickly or gradually, so long as he gives value. Many physicians, pharmacists and morticians have become legitimately rich while performing less important services.) I remain unaffiliated with any company.

Still another organization inspired by the continued publicity was one formed by a Brooklyn industrialist Dr. Benjamin Schloss, a biochemist by training, with the initial assistance of former band leader Artie Shaw. Hoping to win more scientific support by emphasizing research, he first called his nonprofit group the Society for Anabiosis and emphasized freezing humans for possible immortality. ("Anabiosis" means either revival after apparent death, or latent life in the sense of suspended animation.) From late 1964 to early 1966, his approach gradually changed, and the name was changed to Society for Biosis and finally to Foundation for Aging Research, with the emphasis on fundamental research entirely and only small mention of cryobiology.

The big firms with cryogenic interests, *e.g.*, General Dynamics, Union Carbide and Cosmodyne, have expressed keen interest in various ways, but so far timidity has restrained cupidity, and they continue to gaze wistfully at the water, but won't jump in. This is natural enough, since the primary concern of any large organization is not how to *win*, but how to *avoid losing*. They are not interested in maximizing the expected gain, but in minimizing the maximum loss.

Scientific and Medical Reaction

The major reason for the lack of spectacular progress is the caution of physicians and scientists, and it is important to detail this situation.

I have spoken or corresponded with many prominent cryobiologists, biologists and physicians, including: Dr. Harold Meryman of the Naval Medical Research Institute, Bethesda; Dr. Arthur Rinfret of Linde Corporation; Dr. Rupert Billingham of the Wistar Institute of Anatomy, Philadelphia; Dr. Theodore Malinin of Georgetown University; Dr. Richard Lillehei of the University of Minnesota and Dr. Hermann Muller, Nobel laureate of Indiana University. In addition, all the above have made public or semipublic statements. They typically (not necessarily unanimously) regard the revival of people frozen by present

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methods as possible, but highly improbable.

Dr. Muller and Dr. Meryman oppose the program as socially or philosophically undesirable; Dr. Meryman, in particular, has expressed the hope that we will never achieve immortality. The others have shown some degree of symapthy, but appear to be dominated by professional caution and reserve and are unwilling to recommend the procedure unless revival is assured or probable.

It is my firm opinion that such an attitude is ill-considered and irresponsible. Please consider carefully:

1. Any attempt to estimate the "probability of revival" in the *indefinite* future cannot be more than a vague statement of pessimism and certainly cannot represent an actual calculation, although the language seems to suggest that such a calculation has been made. Anyone making such an estimate implies that he knows a great deal both about the nature of the problem and about the ultimate capabilities of science — whereas the best informed person alive knows very little about the former and nothing about the latter.

2. With respect to freezing damage, there are specific grounds for optimism — chiefly the fact that present freezing methods often leave many or most of the cells functional, and therefore a reasonable expectation exists that the others can someday be repaired or replaced. (If some of the cells are functional, it is highly probable that many of the nonfunctional ones have relatively little damage.) For example, dog kidneys have been frozen in liquid nitrogen and did not survive as organs apparently only because of failure of a small percentage of the cells, mainly in the small blood vessels. (Dog and rat kidneys have fully retained or recovered function after freezing for very short periods; and a cat's brain was reported in the lay press to have been frozen for several months with a normal encephalogram after thawing.)

3. The physician's duty is to try to save the patient, not to decide whether he ought to live. If the life-saving attempt involves an extraordinary effort, the physician should present the facts as objectively as possible and allow the patient or family to make the decision. Not to let the patient know of the possibility is certainly unethical, except in cases of incompetence or other unusual circumstances.

4. The physician should remember the many precedents for the use of unproven remedies in otherwise hopeless cases.

5. There are many cases, *e.g.*, involving dying children, in which most of the "philosophical" objections, even if they were otherwise valid, do not apply.

6. Good, not harm, will result even if optimism about those frozen now proves unjustified. Those dying will have an additional measure of hope and will never know disappointment. The families will grieve less bitterly and will know no disappointment either, since a final reckoning, if negative, can hardly come before several centuries. Further, when the

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program becomes wide-spread, society will probably benefit from the long view, becoming more stable; rash and desperate actions will tend to be fewer.

7. An immediate, practical large-scale cryogenic interment program is important, not only to give some chance to those now dying, but also to improve the chances of those dying later. Cryobiological research, now pitifully slow, is unlikely to achieve fully perfected freezing methods within several decades without massively increased support, and such support can hardly come except as a by-product of an immense practical program involving billions of dollars. Thus every one of us — even the young — has a personal stake in an immediate program.

8. Those who might be willing, in effect, supinely to accept a death sentence from a committee of scientists who opine that the chance is "small," should recall that every revolutionary idea is, and must be, initially opposed by the majority. For an idea to be both revolutionary and also immediately acceptable to the majority would be nearly a contradiction in terms. This is not to suggest that an idea must be right if it is new — most new ideas are wrong — but, nevertheless, there is a long, historical succession of radical ideas which later proved right, and every one was at first decried by the experts. In this case, the experts may be right — but will you stake your life on it?

9. Reluctance of scientists and physicians to cooperate is by no means universal; some are enthusiastic, although they are so far relatively few and relatively obscure.

The basic impediment, among most scientists and physicians as well as the general public, is that they have been able to see only two aspects of the program: (1) an interesting abstract problem, especially in terms of sociology; (2) a threat to an established way of life or to a professional reputation. They have not been able to think in terms of saving an individual life, others' or their own. Beside the huge general tragedy of opportunity for two years ignored, there have resulted several individual tragedies of the most pitiful kind.

Near-Misses and Axe-Kneelers

I have had many letters from bereaved relatives who discovered the opportunity too late — in some cases by only a few days, in others be weeks or months. They say they would have done anything, seized any chance, however slim, if they had known in time; some ask if it is possible to disinter the body and freeze it. Whether, in fact, they would have proceeded if they had known in time is another matter.

Dying patients or their relatives have often written me, saying they intended to take this chance, only to give up after all. The most common reason is discouragement by an ignorant physician and by other members of the family, combined with the practical difficulties, effort and financial sacrifice demanded.

In May of 1965, in the well-publicized Springfield, Ohio case, the

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husband of a dying woman determined to freeze her despite her physician's opposition. Another physician was found in the hospital willing to cooperate, and a mortician, and their pastor gave the project his blessing. Mr. Gold, of Juno, Inc., had his "time capsule" standing by; General Dynamics rushed in a large supply of liquid nitrogen, gratis; my brother Alan and I went down there with additional equipment; the hospital administrator agreed to cooperate; and a team of volunteer firemen was standing by to assist in the initial preparation of the body, involving external cardiac massage and artificial respiration. But the hospital trustees became nervous and, after a midnight meeting of the Board, withdrew hospital cooperation. This did not make the project technically impossible, since we still had mortunary facilites, but it gave fresh ammunition to opposed relatives, who finally persuaded the husband to reverse his decision. The patient died a few hours later, unaware that she might have been the first "immortal."

An even more tragic case occurred in the autumn of 1965, when a rather well known scientist died and was buried even though his wish for cryogenic interment was known. He had told his family and colleagues that he intended to be frozen at death; however, not intending to die immediately, he had made no practical arrangements, and when a heart attack struck him down in early middle age, those around him were not equal to the occasion. I was consulted by long-distance telephone several hours after he died, but in the end the family did what was to be expected — nothing.

Several terminally ill patients, or their families, have been in touch with me in recent weeks, and a few seem to be holding out against the disapproval of family and physicians. What will happen — if I may be pardoned the pun — remains to be seen. I can assemble physical help for those who want it and other kinds of help as well, given adequate warning and the full cooperation of patient and next of kin; but in the end everyone must fend for himself. I cannot turn a sheep into a goat, and if a few more sheep allow themselves to be led meekly to slaughter, it probably doesn't matter very much from most points of view.

There may be something to be said for the Oriental viewpoint that causes the condemned to kneel patiently in rows, bowing to the headman's axe. These people who may show the staunchest courage in battle perhaps believe that, when all reasonable hope is lost, submitting to fate at least saves a measure of dignity and is thus better than a frantic, last-ditch effort to escape. On the other hand, their complaisance may reflect nothing more creditable than herd suggestibility and dullness of imagination. In any case, the philosophers of submission can scarcely expect to be heard by the activists: they are dust, and we are flesh; and at most they can occasionally obscure our vision, while their loudest plaints and sternest reprimands can only whisper as the bloodless moaning of forgotten ghosts.

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Whoever wants it, let him put on the cloak of clay, the silent dignity of death. Enjoy, enjoy; rot in good health. You are one with aurochs, one with the desert, one with the night and the dark snows.

Accidental Death

Several more comments are needed to clarify recent history and future prospects, dear reader. You may die if you wish, but to die inadvertently and clumsily, at the wrong time for the wrong reason, for a slight misunderstanding is only a joke in bad taste. Must you exit as a clown?

The obstacles to cryogenic interment are not technical ones, but psychological; let us restate them. First, of course, the majority is dominated by inertia in all things. Second, there is a deep aversion to thinking about death at all, or indeed anything else requiring uncomfortable questions and reshaping of the worldview. Third, our civilized conditioning habituates us to expect that everything worth while will be provided through the usual channels of commerce; self-reliance, except within narrow professional boundaries, is nearly a thing of the past. There are few emergencies, and those few are handled by professionals with sirens; it simply does not occur to the average American that he might have to save himself, that his salvaton may lie nowhere but in his own eyes and hands.

Perhaps the best thing is never to be born, and the next best, to die early. It is entirely possible that nothing at all matters much. But at least be careful not to mistake stupidity for tranquility, or fear for philosophy. For let there be no mistake: almost all those who reject the freezer, either actively or passively, do so out of fear — not a very dramatic fear, but a huddling fear of change, fear of criticism, in short a fear of life.

Even among the organization members there is a tendency to forget the practical imperatives and think of the program as a conversation piece or intellectual toy. Among others, this tendency is nearly irresistible — the first thing many people want to talk about is the "populaion problem," as though this were relevant, as though it would occupy your attention for a split second if *your* child were dying, and you had a chance to save him.

This is the prime need: to think in personal terms, emotionally. It is difficult — as difficult as for a child to comprehend the rule about not running into the street. The child may have a perfect intellectual grasp of the danger — but he runs into the street anyway, because while he understands the peril he does not *appreciate* it; the warning is only a collection of words or, at most abstract ideas, with no emotional content.

Work on it. Build emotional content. Imagine *your* child dead and doomed to rot because you were one day too late in making practical preparations. Rearrange your priorities more realistically: is life a luxury? For those who think so, death is a necessity. END

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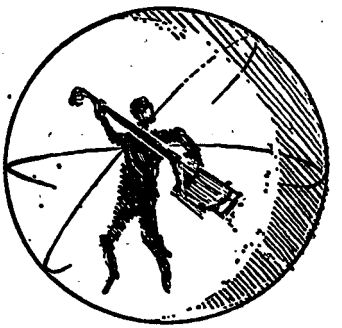
TO THE WAR IS GONE

by RICHARD C. MEREDITH

Dral was a soldier. So was his enemy—it made no difference that she was also a young girl!



Illustrated by BURNS

The Minstrel Boy to the war is gone,
In the ranks of death you'll find him;
His father's sword he hath girded on,
And his wild harp slung behind him.
"Land of song," sang the warrior bard,
"Tho all the world betray thee,
One sword, at least, thy rights shall guard,
One faithful harp shall praise thee."

Thomas Moore
1779 - 1852

I

With the lights out in the turret, the nebula was just bright enough to cast a faint shadow, just bright enough to reflect a twinkle back from the polished decorations of the instrument the young man held in his hands and strummed.

Then the jagged "horizon" of

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metal came up to hide it, first a twisted finger, then the torn lifeboat blister, then the whole ugly mass of dark metal, and the nebula was gone. Except for a strikingly bright yellow star that trailed the nebula by 40° or 50° and the distant myriad of stars of the galactic hub, the turret was in darkness.

Dral Mancil, Cannoneer Second Class, S6-d, United Space Navy of the Free Alliance, became as comfortable as the turret's single battle seat would allow, carefully shifted the numbness of his broken right leg and began to play another tune, one he just barely remembered from his childhood, humming to himself, for he had forgotten most of the words. The eight-stringed varmel in his hands sang back to him, a liquid voice filling the silence that crept into the turret from the depths outside the paraglas dome, a silence more hideous than all the ghastly sounds of war that were now gone, forever.

Stars wheeled through the sky, never once rising and sitting in the same places along the ragged horizon, a horizon that had, a "day" or two before, been part of the hull of a starship.

When next it rose, nearly thirty minutes later, the long, filmy whisp of nebula was further to his left, and for a few moments, just as it cleared the ragged horizon, Dral saw something that he had seen once before silhouetted against the glowing gas, an ugly, twisted something floating a hundred meters above and to the rear of his turret, something that had been a man, but was now no more than another fragment of the ruptured, dead starship. He turned his eyes away from the corpse, for a moment afraid that something, despite the distance, would reveal to him who that thing had been when it was alive, and that was something he did not wish to know.

Flipping a switch on the control board before him brought a bank of meters to life, spreading a soft glow over him and the seat in which he sat. With an effort he turned his attention to the varmel in his hands.

There was a song he remembered, an ancient one taught him by one of the Terran advisors who had been aboard *Rakewind*. It was a pre-galactic song in ancient English, and he stumbled awkwardly across the half familiar words:

I gave my love a cherry that
had no stone,
I gave my love a chicken that
had no bone,
I gave my love a ring that had no end,
I gave my love a baby with no cryin'.

How can there be a cherry that
has no stone?
How can there be a chicken that
has no bone?
How can there be a ring . . .

Movement! Out of the corner of his eye Dral saw something or, rather, saw nothing where a moment before there had been a star. Then the star reappeared, and two others winked out. A spot of blackness was moving at about 2 o'clock, 40° up, coming down at an angle toward the wreckage.

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A ship? he almost said aloud, for his eyes could tell him nothing of its size or distance. It could have been a starship at several kilometers or a tiny fragment of metal from the paraglas turret.

With an unconscious deftness that had been trained into him, Dral Mancil's hands forgot the varmel and moved quickly to the energy cannon's control panel spread out before him. He tapped three piano-like keys, flipped a toggle switch, waved his hand over a photo-cell and adjusted a dial as the laser radar screen in the center of the panel came to luminescent life.

Scanning with the radar, he almost instantly found the object, then waited until the computer buzzed, checking in miscroseconds a dozen factors, then relaying the information to Dral on a read-out board.

Distance: 83 meters. Mass: 77.2 kilograms, Terran. Speed: 6.3 meters per second. Direction of Travel . . .

It was a man-size object, moving steadily toward the far edge of the ragged fragment of the starship's hull . . .

A brief spurt of luminous gas shot from the object, and its direction and speed changed, aiming a little more toward the center of the — wreckage. The radar locked-in on the object, centered it in the "bull's eye" of the scope and followed it in. A ready light came on in the panel before him, a light that said the cannon was prepared to fire; he but needed to push the FIRE button, and a bolt of energy would leap from the cannon's long barrel, and the object would cease to be. Dral did not push the button.

Grabbing the headset that drifted aimlessly in free fall above him, Dral pulled it down over his head and at the same time flipped on the radio transceiver in the lower left of the panel, switched it to wide-band transmission, scan modulation, and spoke into the throat mike.

"Hello, out there," he said, thinking how foolish that might sound and, at the same time, realizing that any embarrassment he felt was more foolish still. (Do you hear me?" he said in Orphean, the language of the Federated Lords. "Hello," he said again, switching to Terran. "Do you hear me?" The language of ancient Terra was awkward in his mouth, but at least it would be understandable to those who spoke the language.

The falling object did not answer, but another spurt of gas, suddenly hurling it toward the hull, showed that his words had been heard.

"Acknowledge!" Dral yelled into the microphone. Then in Terran, the same word.

There was no acknowledgment as the object struck the hull, rebounded, then settled back and was lost to radar among the ragged metal.

Dral realized that he had taken too long. He had delayed too much. That thing, that "person," was already on the hull, a possible enemy, and he had not taken the action that in all logic he should have taken. Now his only course was to fire the cannon at the expanse of hull, blast away metal in the hope of destroying the invader.

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Manually he cycled the cannon down to the horizon, as low as it would go, and panned toward the object's landing spot. The scope of the radar now showed metal hills and infinite space beyond.

"If you don't answer immediately, I'm going to fire," he said, his hand going to the FIRE button, the tip of his index finger resting on the red knob.

But what if it's one of ours? he asked himself, knowing that, in fact, it could be a crew member of *Rakewind,* blasted free of the wreckage, having now, two "days" later, somehow made it back to what little was left of the starship, his radio inoperative, unable to reply to Dral's signal. His hand rested above the button, but he did not fire.

"Can you hear me?" he said into the throat mike. "Look, if you can, but can't answer, give me some kind of a sign. Please." The last word came out against his will.

There was no answering signal from the jungle of twisted metal.

No answer. No signal. There was no question about what was the proper action to take. The two-centimeter movement of his index finger would solve the problem — would throw a bolt of energy against the hull, would vaporize metal and flesh — flesh. He did not hit the button.

The filmy whisp of nebula was rising again, somehow this time having gotten to his right rear, and cast its soft, diffused glow across the wreckage, long, faint shadows shortening as it rose toward the zenith of the black, star-flecked sky. Dral saw him.

It was a man, a human figure in a bulky spacesuit, on his feet now, pulling his magnetic boots free of the metallic hull and half running, half leaping toward the ruptured metal blister that housed one of the dead starship's lifeboats. The figure turned back once to look at the energy cannon turret where Dral sat watching and then leaped into the gap in the lifeboat's blister, vanishing into the darkness inside it.

"Spirit!" he said aloud to himself, as much a plea as a curse. The spacesuit he had seen was that of neither the Federated Lords nor of the Solar Trading Company. It was a Thorna! He had seen the galaxy and spear emblazoned on the spacesuit for a brief moment, the symbol of the unmen, the half-humans against which all that was left of mankind was battling. A Thorna was somewhere inside the lifeboat blister. A living Thorna had gotten to the lifeboat that was inaccessible to him. A Thorna had survived the desruction of *his* warship, as Dral had survived the destruction of the mighty *Rakewind.*

Dral aimed the energy cannon toward the lifeboat blister.

But to destroy the lifeboat would be to destroy any chance, no matter how remote, of his ever getting off the wreckage. Though he had no spacesuit, no way of traveling the few meters to the lifeboat, Dral could not destroy it — not until he was *sure,* absolutely sure, it would never be of use to him. Of hope, there was little, but what little there was, he could not give up.

He did not fire.

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II

When the starship *Rakewind* died in battle off the Cranrein Nebula, it and its crew were casualties of a war that had begun nearly a standard century before, nearly a hundred revolutions of ancient Terra around her sun, and yet showed no promise of ending within the lifetimes of any of its combatants. It was a strange, hideous unholy/holy war fought by men against men who were something less than men, or more.

Nearly two centuries before the birth of Dral Mancil, when the fragments of the Collapse of the Terran Federation still littered mankind's portion of the galaxy and half-barbaric nations still battled for dominance and only the Solar Trading Company, more ancient even than the dead Federation, kept some small semblance of order and civilization, the "Little Brothers," creators of the thing called *Thorna,* landed in the darkness of the Rim world Seth and began that ghastly war.

Fourteen creatures whose world of origin was still unknown had slithered from the wreckage of their spaceship, fourteen blobs of greenish-gray flesh which would have weighed no more than four and a half kilograms on Terra, fourteen Little Brothers mindlessly, with the sure instinct of creatures who had never known intelligence, sought hosts. Shell-less mollusks, perhaps from beyond Man's galaxy, found human hosts who did have intelligence, nervous systems with which they would mesh, with which they could unite to become a single entity that was neither Little Brother nor Man, but the telepathic brotherhood of a single many-bodied creature men came to call *Thorna.*

During that first night on Seth the Thorna consisted of only those fourteen, yet that was enough. Carefully, cautiously, spreading secretly through the two dozen plus worlds of the rigid, stratified society of the Outformed Clans, the members of the Thorna grew until in less than a century their numbers were in the thousands, in the millions, until they controlled the society of the Clans and were in a position to begin their conquest of all of Man's portion of the galaxy, in the fervent belief that they/it was the logical successor to the human race.

At last, still hidden, still secret, the Thorna's strength within the Outformed Clans was great enough to launch their war of conquest. Striking to the galactic east, into the Federated Lords of Orpheus, the Thorna began its holy war, its *jehad* against the unpossessed. Millions of true Thorna, members of that single telepathic entity, and more millions of unpossessed humans giving allegiance to the Thorna, both wittingly and unwittingly traitors to their species, rose to do battle against the children of ancient Terra.

Rallying behind the stylized solar disk and rays of the Solar Trading Company, the human nations tentatively united in the Free Alliance and began to fight back. And fight they did, bringing the hideous conquests of the Thorna to a halt. And there the war grew static.

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The War — it was known simply as that, The War — had seen the development of new weapons and counter weapons, new communications systems, new means of patching together mutilated human bodies; it had seen vast fleets of starships sweep through the void on missions of death and destruction, yet for a century neither side held an advantage long enough to press forward to total victory.

Not until the Haydron G-Screen, at least.

Gril Haydron, born in the mountains of Ymir's southern hemisphere, educated in the splendid universities of Odin, dug into the nature of gravatic fields, a form of energy mankind had only begun to understand.

Even then most detection systems operating over interplanetary and interstellar distances were based upon gravitational principles, upon the fact that all matter at all times constantly emits those elusive "particles" called gravitons, those infinitely tiny matter/energy quanta that give matter the property called *weight*. Yet true control of gravatic energy was still a remote dream when Haydron set down on paper a theory of gravatic shielding, a means of at least holding the emission of gravitons within a limited area, of turning them back, as it were, so that while a starship might emit its normal amount of gravatic energy, that energy could be contained within a closed field and its detection prevented.

A team of Odineese scientists and Solar Trading Company engineers began working from Haydron's theory and built the so-called Haydron G-Screen.

Under laboratory conditions it worked perfectly. Simulated combat conditions produced the same results. But the ultimate question was still unanswered: Would it fool Thorna detection devices? There was but one way to test it — send a ship into the heartland of the Thorna empire, let it see whether it could escape detection.

The Solar Trading Company starship *Republic of Omaha* was refitted, armed, filled with electronic and gravitational equipment and renamed *Rakewind*. Into it went scientists from Odin, engineers and technicians from Terra and a crew from the watery world Galatea. The starship rose from the spaceport world of Luna, companion of ancient Terra. *Rakewind* lifted from the thousand-square-mile Lunaport 6-A', fired a tail of plasma that carried it to thirty-seven million kilometers above the plane of the ecliptic, hit her Gurber-Marjahrl Drive and jumped quickly into the remote regions of Non-Space.

Just short of a Terran month later *Rakewind* re-entered normal space on the edges of the Cranrein Nebula, near the heart of the Thorna empire, a little more than a light-week from the planetary system containing the rugged forested and fortressed world of Sindukht.

The test of the device that might win the war for beleaguered mankind had begun.

Would it work?

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III

Remote and inaccessible less than a hundred meters away, the lifeboat on the fragment of *Rakewind* might as well have been as far away as his homeworld of Galatea to Dral Mancil. Without a spacesuit there was just no way to get there.

His intellect told him to hit the FIRE button, to vaporize the lifeboat now, but his emotions told him: *No! Wait. Don't do anything yet.* Wait until the blister opens — if it can — wait until the lifeboat is silhouetted against the stars. Let the radar lock on it; let it get a few meters above the hull — then blast it and its damned Thorna passenger. Wait, something inside him said. And hope.

The glowing, filmy whisp of the Cranrein Nebula rose and fell, arching across the ruptured hull, casting its faint light, time after time after time, revealing in its passage the torn blister that still hid the lifeboat.

Dral watched each time there was enough light, watched for the figure of the Thorna to come out on some mysterious errand, but the figure did not appear. And yet hours passed without the lifeboat lifting, without the blister opening or being torn apart by the explosive charges built into it for emergencies when it could not otherwise open. The lifeboat did not move. The Thorna did not come out.

Dral watched and waited, strumming his varmel, remembering.

It was an hour before breaking back into normal space, Dral remembered, when Captain Jaklin, like himself from the world of sea and islands, Galatea, gave the orders.

"Combat Alert!" he had said simply over *Rakewind's* communicator. "As long as we remain in normal space this ship is on Combat Alert. You will man your battle stations and remain there until we have completed this mission. Good luck and Spirit's blessings to you all."

An hour later Dral Mancil sat in the starship's rearmost energy cannon turret, when the ultimate blackness of Non-Space twisted into incomprehensible topological figures, when something grabbed his stomach and savagely pulled; and suddenly the blackness was filled with stars, and the ship was back in normal space. A long tail of super-heated, ionized gas jetted from the great ship's rear, and she began to accelerate toward the planetary system containing Sindukht and the place where they would test the Haydron G-Screen.

"Day" after "day" passed as the ship gained speed, approaching the velocity of light itself, and entered a cometary orbit that would take it rushing in a parabolic path past the raging atomic furnace of Sindukht's sun, within a few light-minutes of the fortress world itself. "Day" after "day" Dral Mancil sat in the paraglas blister of the energy cannon turret, laser-radar scanning empty space for the presence of enemy warcraft. Empty, silent, alone. Encased in an invisible cocoon of gravatic energy, the huge *Rakewind* fell toward Sindukht, in toward its sun, its path beginning to curve subtly as it

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approached the plane of the ecliptic. And still alone.

"There she is," Captain Jaklin said over the communicator as the star grew from a point of light and became a disk in the polarized paraglas, and even as Sindukht itself became a bright spot of reflected light in the blackness. "There she is," the delighted voice of the gray-bearded combat veteran said. "I think we'll make it, men," he said to his crew as *Rakewind* rushed past Sindukht, a bare three light-minutes away, and was still alone, still unmolested, still not detected by the finest instruments the Thorna could bring to bear.

"Dral," the captain said to the cannoneer, "give us a song."

"What will it be, sir?" Dral asked his captain, lifting his varmel from its special holder on the side of the cannon console.

"'The Long Walk' might be appropriate," Jaklin said over the communicator, "but I'd rather hear 'Ramala the Hout.'"

"Yes, sir," he answered, smiling to himself and adjusting a dial on the side of the instrument.

Have you ever been to Hamel,
On the world of Horn?
Have you ever been to Hamel,
Dressed like you were born?
Have you seen the girls of Hamel?
Do you know what they're about?
Have you ever met with Ramla?
Sweet Ramla is a Hout.

O, sweet Ramla is a Hout
Great Spirit, she's a Hout,
And you've got to meet sweet Ramla,
'Cause Ramla is a Hout.

Well, let me tell you fellows,
I know Ramla well,
And never will regret it,
Even when I roast in Hell.
O, lord, is she a lover,
O, lord, is she a girl.
She'll get you down upon her bed,
And take you for a whirl.

O, sweet Ramla is a Hout . . .

Well, I dropped grav's on Hamel,
Upon the world of Horn,
And stepped out of the airlocks,
Upon a lovely morn.
Twenty girls were there to greet me,
So lovely for to see;
Such figures I have never seen,
And naked as could be.

O, sweet Ramla is a Hout . . .

One ran up and grabbed me,
And kissed me on the mouth;
Another grabbed my good right arm,
And then she headed south.
Next thing I know, fellows,
They had me on the ground,
And they were pullin' off my clothes
And dancin' all around.

All eighteen increasingly obscene verses he sang as *Rakewind* fell past Sindukht and toward its spin around its sun.

Then their parabola reached its farthest point and cut back toward interstellar space, and, ever gaining speed, the great *Rakewind* rushed out of the system and headed back toward the worlds of Man.

It was luck, Dral told himself later. No more than luck. They hadn't been detected — they had just had the terrible misfortune to encounter a Thorna ship returning to Sindukha, a ship that did not even know *Rakewind* was there un-

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til the battle had begun. The one shortcoming of the Haydron G-Screen was that it also incapacitated the gravatic detection systems of *Rakewind.*

Another song was coming from Dral's varmel, the traditional song of the United Space Navies of the Free Alliance, the story of "The Long Walk." The fifth verse was on his lips:

> Then he walked onto the spacefield;
> the girl was at his side.
> And he was standing on the open,
> with no place left to hide.
> Then he took that bloody pistol and
> placed it 'neath his chin,
> Knowing then that should he die,
> even yet he'd win.
>
> Then he told that stinking Horam . . .

"General Quarters!" the yelling voice of Captain Jaklin sounded "Enemy ship." And at that same moment the starship's master computer informed all battle stations of the situation:

Thorna battlecruiser, Nova class, eleven thousand, two hundred and ninety kilometers ahead, altitude+12°, azimuth+32°, velocity . . . The computer rattled off its detailed information in that language spoken only by other computers — but the crew understood enough.

Death was at hand!

Even before the Thorna ship realized *Rakewind's* presence, a dozen energy cannons threw blasts of naked fury against its force screen, tearing into the shimmering field surrounding the warship. For an instant *Rakewind's* own field collapsed as half a hundred nuclear missiles vomited from their firing tubes, locked-in on the enemy behemoth, roared toward it on plasma rockets, searching for a momentary gap in the force screen torn by *Rakewind's* blasting cannon. The enemy's field faltered for a moment, while it spit out its own progeny of death — and in that instant three of *Rakewind's* missiles entered the gap. A Thorna energy cannon stopped two of them, still kilometers from their destination, and for two brief instants the enemy ship was bathed in nuclear light. Then a moment later the ship was no more — an expanding cloud of fragments and luminous gas.

But the mighty *Rakewind* was already dying. A dozen Thorna missiles broke through her screen. Dral's own cannon stopped two of them. But like the enemy's own death, one missile found its target, the very bow of *Rakewind.* And atomic fury unleashed itself against the metal and paraglas hull.

Rakewind was no more.

Dral remembered, only two well he remembered. He knew that the ship had been hit, torn part. A great fist of fury smashed against him, tearing the straps that held him down, throwing him out of his seat against the deck, shattering his paraglas helmet, tearing his suit against sharp metal angles. His right leg, buckling under him, snapped. Then darkness replaced pain and fury.

He awoke, alive but hurt, trapped in a fragment of the ship, captive in a bubble without an operative

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spacesuit, with no food and little water and only enough reserve air to last perhaps a week if he were careful. This and a still operative energy cannon — and a lifeboat seventy meters away, yet as remote as home.

There he waited — and hoped — and saw the Thorna land on the wreckage of the hull and make his way to the lifeboat that was inaccessible to him.

There he waited.

IV

Time tends to lose its meaning in interstellar space, in its subjective sense as well as in its objective sense. This is even more true when your "day" is only a few minutes long, when the rotation of your "world" is less than an hour.

So it was with Dral Mancil as he sat in the cannon turret on the hull fragment of *Rakewind,* a dull throbbing growing in his leg despite the cast he had applied and the medication he had taken, as he watched the lifeboat blister and waited for the Thorna to act.

Yet the Thorna did not act. Minutes slipped by and became hours. Hours, one after another, piled up and, at last, formed another standard day, and the enemy who had entered the lifeboat had not taken action.

Constantly watching, keeping the radar fixed on the spot where the blister rose from the twisted wreckage, Dral reviewed the situation quickly:

A huge fragment of *Rakewind's* hull had been torn loose when the ship exploded, a fragment perhaps a hundred and sixty or seventy meters long and fifty meters wide. Toward one end of the long axis of this fragment was the energy cannon turret, still miraculously intact. Nearer the center, to Dral's left, was the four-meter-high metal blister that protected the ten-man lifeboat.

How much of the inside partitions, decks, bulkheads, *etc.*, of the ship still clung to the fragment, Dral did not know, but probably very little. The cubicle directly "below" the turret, the place where his fuel cells, food and miscellaneous supplies were kept was no longer airtight. Though water was available from a tube which ran from the supply cubicle, the extra combatsuit and the emergency rations, three meters from where he sat, were totally inaccessible. Fortunately, the fuel cells that powered his cannon and air recycler were intact and operating and showed a life expectancy far exceeding Dral's.

All he could do was wait — for what he did not know. For the Thorna to act? For starvation to overcome him? For another ship from the Free Alliance to sweep this close to Sindukht and rescue him? For a miracle to save him from a slow death in this paraglas bubble?

Dral grabbed up his varmel and sang to drown out the thoughts he no longer wished to hear.

Deluna was a lady, with this you
  must agree;
She surely was a lady, look and you
  can see:
She wore her clothes so neatly,

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prim and proper, so,
She surely was a lady, come on,
my friend, you know.

Well, yes, she was a lady; I guess
you'd call her that;
You could see it in her carriage
and in the way she sat;
Her speech was nearly perfect,
as was her careful poise;
She was so prim and quiet,
and never made a noise.

Yes, Deluna was a lady, we must
agree on this;
She surely was a lady, until she
got a kiss;
Then something happened to her,
some inhibition fell,
And sweet and prim Deluna headed
straight for hell.

O, then she lost her virtue and
that wasn't all . . .

"'Ello, in the cannon turret, can you 'ear me?" a feminine voice said from the loudspeaker in the console of the cannon controls. "'Ello. Please, can you 'ear me?" The girl's voice — for it was the voice of a girl or young woman — spoke the Orphean language with a strange, alien lilt.

"I know you can 'ear me," the girl said. "I 'eard you before. When you said you would shoot. I know you can 'ear me."

Then Dral realized whose voice he was hearing — the Thorna who had gone into the lifeboat blister. The Thorna was a girl.

"Please answer me," the girl's voice said from the loudspeaker. "You said you would kill me, but you did not. Please answer me. I must talk with you."

Slowly Dral took the headset and slipped it over his head until the throat microphone was in position.

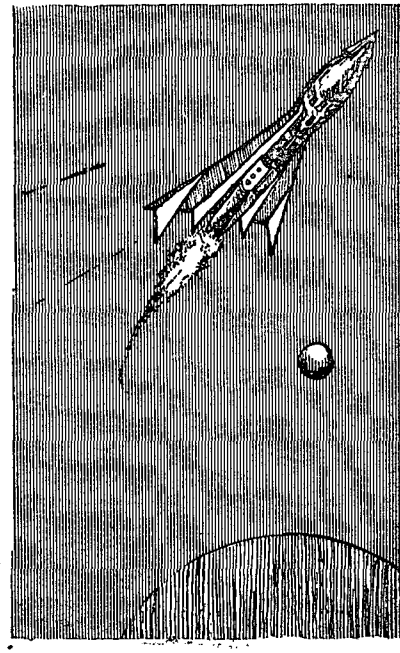
"Please, please," the girl's voice said. "I did not want to call you, but I 'ave to. I will go out of my mind unless I talk to someone. Please answer me. I know you can 'ear me."

"I hear you," Dral said at last.

"Oh," the girl cried, "thank the Many Facets. I am so glad. I was afraid that you would not answer me."

"What do you want?" Dral asked coldly.

"Please," she said, "just talk to me for a few minutes. I 'ave been so frightened and lonely, but I was afraid to call you. I thought that



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if you knew for sure where I was, you would blast me. But I just could not endure it any longer. I 'ave been through so much 'ell now, and I just do not care any longer. If you did not answer me, I did not care whether you blasted me or not. Facets, I 'ave been so lonely." She paused for a moment.

"You are Orphean, are you not?" she asked in a calmer tone.

"Galatean," Dral answered, wishing it were 3V rather than radio, wishing he could see the face of the enemy he spoke to — of the girl he spoke to.

"That is the same thing," the girl said, trying to put a smile into her voice. "I mean, you are from the same stock."

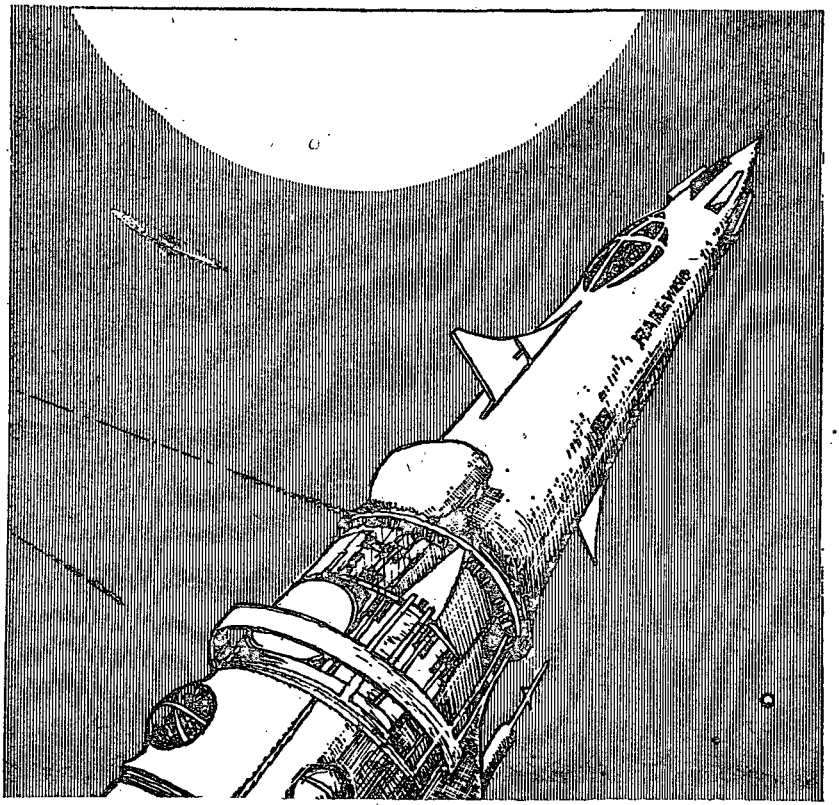
"My ancestors were from Orpheus," Dral admitted.

"I am sorry. I did not mean to insult you if I did," the girl said.

"No, that's okay."

"What is your name?"

"Dral Mancil," he answered, wondering what the girl was getting at.



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"Mine is Tonu'Lehani," she replied. "I am from Scylla."

"Scylla?" Dral said, knowing that Scylla was one of the worlds conquered by the Clannish during the early expansion of the Thorna, before the rest of mankind was aware of the true nature of the war and the enemy — knowing that Scylla was also the home of the L'lylians.

"Yes," the girl answered, "I am from the part called L'lylia."

For a moment, against his will, Dral's heart jumped within him — *L'lylian*. In all the languages of men there was no other single word that conveyed so much information as did the seven letters that made up the word *L'lylian*. To all men on all worlds the word *L'lylian* meant sensual beauty, the sexual female brought to perfection. For five centuries the women of L'lylia, from that wild, desert region of Scylla, had danced before the men of the galaxy, a dance as ancient as Life and the Universe, as ancient as the urge to mate. And this is what the word L'lylian meant to Dral Mancil and the galaxy, a beautiful, mystic sensuality that could be expressed in no other word. The voice he listened to was that of a L'lylian.

"Are you still there?" the girl's voice said again, now its strange, alien quality more pronounced, more sensual; it was the voice of sex and beauty and mystery out of a world few men understood, but all, in some way or other, worshipped. "'Ello, 'ello."

"I'm here," Dral said slowly, fighting to hold back the mixed feelings he felt within himself, feelings he could not really understand and was not sure whether he wanted to understand.

"Please, did I say something wrong?"

"No, no. It's just that . . ."

"Listen, please," the girl said urgently. "I am not a monster."

These words were as great shock to Dral as had been the word L'lylian, — and they created as vivid a picture in his mind, a thought of an opposite nature.

She might be L'lylian, but she was also Thorna. He had seen the cut of her spacesuit and the symbolic galaxy and spear on her breast. Lovely, sensual woman she might be, but monster also she was. In his mind Dral could see the long dark flowing hair, the copper color of her flesh, the rounded forms of her body — and he could also see the greenish-gray blob resting between her shoulder blades, four and a half kilograms of hideous, alien flesh that was as much a part of her as her own hand, a thing that had become one with her and made her into something less, or something more than human, but something that could not be called human. She might be a beautiful, sensual creature — except for the thing on her back.

"Please! Please!" the girl's voice suddenly sobbed from the loudspeaker.

Dral's hand slowly moved toward the FIRE button of the console.

"*No!*" the girl screamed as if she were somehow aware of his action. "Do not blast me," she cried. "I am not what you think I am."

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His finger paused instantly.

"I am not a Thorna," she cried.

"What do you mean?" he said into the throat mike while the nebula, approaching the zenith, cast a pale light over the twisted metal of the hull.

"I am not — you call it, possessed. I do not have a Little Brother. I am not — ah — in the Thorna. I mean . . ."

"I saw your spacesuit," Dral said coldly. "You were in the Thorna ship."

"Yes, yes," the girl pleaded, "but I am not one of *them*. Listen, there were over four thousand people on the ship. There were only one 'undred and twenty real Thornas. I mean, the rest of us were just people like you."

Dral did not answer.

"Listen, do not do anything yet, please. You may blast me later if you wish, but please listen. Will you?"

"Okay," Dral answered at last, his finger not quite touching the FIRE button.

"Do you know how many people there are in our empire now?" she asked. When Dral did not answer, she went on: "Somewhere between twelve and fifteen billion. And do you know 'ow many of us are Thornas? Less than a billion. Something like seven 'undred million. Perhaps five per cent."

Dral remembered having heard this before. It was true, he supposed. But he, like most people, tended to think of all members of the Thorna empire as true Possessed Thornas.

"It will be centuries before all of us are Thornas," the girl said.

"How do I know you're not one of the five per cent?"

"I cannot prove it to you. Not right now. I will later. Please believe me."

"Then why do you serve those damned monsters if you're not one of them?" Dral asked savagely.

"You do not really know what a Thorna is, do you? None of you do!" There might have been anger in her words. He was not sure.

"No, maybe I don't," replied with a touch of anger in his own voice.

"Look at you," she said slowly. "You do not trust me. I do not trust you. Can you, or I, really trust anyone? A Thorna can trust another Thorna because they live in the minds of one another. One can see everything the other sees and thinks and feels. Those seven million Thorna are really one person."

A wave of disgust came over him.

"Look at 'istory, Dral Mancil, and what do you see? As far back as 'uman 'istory goes there is war and 'atred and killing, misunderstanding and dishonesty and deception. The Thorna will end all that. The Thorna will not just make all men brothers, but it will make all men One."

"War?" Dral yelled. "Then what is this thing we're in now?"

"The Thorna does not want war. The Thorna wants peace, but it must fight, and we must fight for it, so that one day all men will be of the Thorna and never again will there be war or 'atred."

"The Thorna started this war," Dral countered.

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"Only because it 'ad to."

"And what kind of peace will your Thorna bring us? Who wants to be a slave to a slimy slug on his back?"

"No, no! That is wrong!" the girl cried. "A Thorna is not a slave to anything. A Little Brother is not a master. It is nothing by itself; do you not know that? The only thing that makes it different from any of a 'undred other shell-less mollusks is its mutual telepathy."

"It's a blood-sucking parasite!" Dral yelled into his throat mike.

"No, it is not a parasite," the loudspeaker replied. "It is a symbiont, and there is a difference. It lives on its 'ost's body, but it gives something in return: the power to communicate with the mind. A man with a Little Brother is still a man, but with something more."

"A mindless slave with a slug on his back," Dral yelled. "That's what your Thorna is!"

The girl answered by breaking into hysterical sobs.

"Please," she said at last, "please do not yell. I do not wish to argue with you. I am so alone and frightened. Please, perhaps you are right. Perhaps I 'ave been taught wrong. I do not know. Really, I do not."

The girl's contrite words and the broken sobs of her voice dissolved Dral's anger. He looked up at the stars moving beyond the paraglas dome and realized how lonely he had been—and how lonely the frightened girl must be. Give her a chance, some part of his mind said. She's never had a chance. She only knows what those monsters have taught her.

"I'm sorry," he said at last. "I shouldn't have yelled."

"Let us be friends," the girl said. "We must be. We are alone here, the Facets only know how far from any other people."

Twelve light-days, some cold, calculating part of his mind said. Twelve light-days from Sindukht and the Thorna fortress.

"You're in the lifeboat," Dral said. "Why don't you leave. It would get you to Sindukht."

"I cannot," she answered.

"Is the lifeboat damaged?" Dral asked, his heart sinking within him.

"Yes, some. The fuel cells have been smashed. There is no power except for a few batteries like the ones in the radio I am using."

Dral felt a vague glow of hope.

"Anyway," Tonu went on, "even if there were power, I do not know how to operate the lifeboat."

"There are instructions," Dral told her. "There is a computer and an ephemeris. You could use them."

"No, I could not," the girl said, a bitter laughter in her voice. "This was a Solar Trading Company ship, was it not?"

"Yes, it was."

"And the official language of the Solar Trading Company is English, is it not?"

It was so, Dral realized, glancing down at the console and seeing the words inscribed on it in a language that had, except for the S.T.C., been dead a thousand years. He and the Galatean crew had all been required to learn that ancient language before being able to man the ship given them by the S.T.C. of Terra.

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"You don't know English?" he asked.

"No. When would I have ever learned it?"

So she was no better off than he — in a lifeboat that had no power and which she could not operate, even if it had.

"You did not know that the fuel cells were smashed?" Tonu'Lehani asked.

"No," Dral admitted.

"I thought . . . " She paused. "I thought that you 'ad probably come to the lifeboat and seen that its cells 'ad been broken and gone back to the turret."

"No, I haven't left the turret."

"Why? I mean, did you not wish to use the lifeboat?"

He did not answer at once, fearing to give the girl too much information about his own plight.

"Why?" she asked again.

"I can't," he said slowly. "My combatsuit helmet is broken — and I'm hurt."

" 'Urt? 'Ow?"

"My leg," he said. "It's broken."

"Oh," the girl answered. Then after a while: "Is it bad?"

"No," he said. "It's okay as long as I don't move around too much."

They were both silent for a few minutes.

"Then we are both trapped," the girl said at last.

"I suppose we are," Dral answered slowly.

V

Dral sat in the darkness, lit only by the recurrent passing nebula and the faint glow of the console dials, strumming his varmel softly and listening to the strange, lovely voice of the girl telling about her childhood in L'lylia of Scylla. There seemed to be nothing left to do but talk, for a while, at least.

The mother of Tonu'Lehani had been a L'lylian dancer; she had performed her sensual dance before the masters of the Thorna empire, but the war at last imposed itself on that remote world, and her daughter had been forced to abandon the ancient arts of her people and learn a trade more suited for galactic conquest. Nursing, another of the more ancient arts of womankind, became the profession of Tonu and her sisters, while her brothers lifted skyward in the great Thorna warships to die among the stars. Tonu, in her turn, had been assigned to a warship, a nurse on the Nova class battle cruiser *Horam*, and she had been aboard that ship when it made its way toward Sindukht — when *Horam* met *Rakewind*, and both ships died in atomic flame. Tonu had survived the hell, alone of the four thousand on the ship, and, spacesuited, she had drifted until she chanced upon the wreckage and the lifeboat.

And Dral, too, told her of his childhood, of his watery world, Galatea, and his ancestors who had sailed the seas of their world, and of the musical heritage of his sailor folk, and of the fragile, priceless varmel he held and softly strummed. And she asked him to play for her, to sing a song of his childhood.

In Drummon town where I did live

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There was a fair maid dwellin',
Made every youth cry, "Well-a-day,"
And her name was Barby Allin.

Was in the gentle month of Nain,
The green buds they were swellin',
Vai Mallin, he was there a dyin',
For love of Barby Allin.

He sent a friend down to her house,
To the place where she was dwellin',
"O, sweet maid, please come with me,
For your name is Barby Allin.'

All of that ancient song of love and death he sang to her, of the poignant tale of both their deaths, and their ultimate reunion after death. And when he concluded the sound of her sobs could be heard over the loudspeaker.

"It is beautiful," she said at last.

The eight-stringed varmel in Dral's hands sang from its liquid throat like a living thing. Yet the varmel was just an instrument, skillfully constructed by a man: a set of strings, a wooden box, shaped and molded, a wooden neck, half a dozen electronic modules, two knobs, a small button, a few connections — this was a varmel. A simple thing, just an object — except when in the hands of one who could make it sing. Such a one was Dral Mancil.

Somewhere in the distant past, in the time of his father's father's father, a man had come to Galatea — a Terran who spoke the language of the sea world with an awkward tongue, a man from ancient Earth who fled some terrible crime, some hideous sin that would cost him his life should the Pinkers of the Solar Trading Company ever catch him. He was a shy man, a small man, a man who made every effort to blend into the scenery of his adopted home, watery Galatea. The father of the father of the father of Dral Mancil hid this Terran in his home and learned then that the shy little man was an artist-craftsman, a maker of singing varmels. While hiding there the fugtive built a varmel and gave it to the father of the father of the father of Dral Mancil.

Many years later when the Terran was dead and Dral's great-grandfather too rested at the sea bottom, Dral's grandfather learned something of the story behind the Terran's flight to Galatea and something of the value of the varmel. Even then, but two decades after its construction, it was priceless. When it came into Dral's hands at the death of his own father, the varmel was probably the most valuable single object on Galatea.

At Dral's hands this instrument received the care it deserved; and, in return for his care and skill, the varmel sang to him, and he sang with it, his long fingers dancing across the strings, his finger-tips resting for a moment between the frets as his thumb plucked a string — the singing of the string swallowed by the box, inhaled like a breath of air by electronic pick-ups, fed through circuit boards, amplified, modified, taken and made into something it had not been, fed to the electro-static coatings that covered the back of the instrument and then sung into the air, melodies no other

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instrument could ever produce.

Of all things that were, none was so valuable to Dral Mancil as was this ancient varmel.

In Parceka town there dwelt a maid,
Mark well what I do say!
In Parceka town there dwelt a maid,
And she was mistress of her trade,
And I'll go no more a-roving with
you, fair maid.

A-roving, a-roving,
Since roving's been by ru-i-in,
I'll go no more a-roving with you,
fair maid.

I took that maiden for a walk,
Mark well what I do say!
I took that maiden for a walk,
And sweet and loving was our talk,
And I'll go no more a-roving with
you, fair maid.

While he played and sang for her, Dral waited for Tonu to bring up a subject that he knew she would bring up, wondering what his own answer would be.

At last she said it:

"Could you really 'ave blasted me with your cannon?"

"I still could."

"You mean that your cannon was not connected with the ship's main power?"

"Yes, it was," he answered slowly, looking at the silhouette of the lifeboat as it occulted the stars behind it, "but I have emergency power too. There's a bank of fuel cells just below me. I don't think any of them have been damaged."

The girl was silent for a few moments before she asked her next question.

"Dral," she said, "would those fuel cells work in the lifeboat?"

"Yes," he answered simply.

The girl did not speak at once.

Dral knew that three or four of the fuel cells from his emregency supply would be more than sufficient to ignite the chemical rockets of the lifeboat and get it clear of the wreckage where its Gurber-Marjharl unit could kick it into Non-space; then even on the feeble chemical rockets, given enough time, the lifeboat could achieve translight speeds, could make the trip to Sindukht in a few days, a week at most and could even conceivably get to Prometheus or one of the other worlds still in the hands of the Federated Lords and the Free Alliance. All that was needed was to get the fuel cells from the cubicle below over to the lifeboat — a simple task for a man with the proper equipment and without a broken leg. Unfortunately Dral Mancil was neither.

"Dral," Tonu said at last, "I do not wish to die out 'ere."

"I don't either."

"We do not 'ave to."

"I wonder."

"Please, Dral," she said. "Listen, there are 'elmets in the lifeboat. I could bring you one. You could show me 'ow, and I would carry the fuel cells to the lifeboat, if you cannot. You know 'ow to read English, do you not? You could work the boat." Her words poured out in a frantic torrent.

"We *could* do it," he told her. "But where would we go? To Sindukht?"

"It is the closest planet."

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"Yes, it is, but what would I be there? A prisoner of war, and maybe a special prisoner of war if they begin to wonder how *Rakewind* got in and out of the system without being detected and why your ship didn't detect us until we were within radar range."

"'Ow?" the girl asked rather innocently.

"I don't know much about it," he said, "and what I do know, I'm not telling. Not even to you."

"Is there not another place we could go? I will go anywhere."

"Maybe, just maybe we could get to Prometheus. There are supplies for ten on that boat, but it was never meant to go as far as that. I don't know, maybe we could."

"I will go to Prometheus, Dral. They would not 'urt me there, would they? I mean, I do not know any military secrets. I am just a nurse. A noncombatant. I would be safe, would I not?"

"We don't make a habit of torturing our prisoners like some people."

"Please, Dral," she said, ignoring the insult. "Let us go to Prometheus."

"How can I trust you?" he asked. "How do I know you won't pull a gun on me and force me to take you to Sindukht? Spirit, how do I know you don't read English, and all you want are the fuel cells?"

"Trust me, Dral, please. Why would I wish to do those things?"

"You're the enemy."

"Dral! I thought that we were going to be friends."

"Spirit! I wish I could trust you."

"You may trust me, Dral. You may trust me."

How did he know that any of the things she said were true, he asked himself. He had no way of knowing.

Every word could be a lie. But why would she lie to him? To save her own skin, of course. To get back to Sindukht so that she could report the antidetection fields of *Rakewind*. What did she know of them? Nothing, really. She was just a nurse; she probably didn't even realize the significance of the whole thing. And, sure, Dral didn't know anything about the antidetection system, not really. But then she didn't know that. She might think that Dral knew all about it, that he . . . Hell! he said angrily to himself. She's just a frightened girl facing death, and she's scared. And a beautiful girl, too, if you can judge from the reputation of the L'lylians.

A small lifeboat, millions of kilometers from any place, on a two-month trip toward Prometheus with a beautiful girl. Now that was something to think about. Dral strummed his varmel's strings.

"Dral," the girl said, "please listen to me. Men tell me that I am pretty. I am twenty years old, standard, and I 'ave a good figure. I am a L'lylian, and I know 'ow to make a man happy." Tonu was thinking along the same lines as Dral. "I will do anything you want me to do if you will take me to Prometheus. Anything, Dral. I promise."

"If I do it," he said, not believing a word, "it won't be because of that."

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"I don't care, Dral," the girl said softly. "I think I like you, even if you are stubborn. I think I would want to do it anyway."

Dral sat silently in the darkness as the Cranrein Nebula rose again, casting its glow across the torn hull fragment of the dead starship.

"If only I could trust you."

"I 'ave said all that I can say, Dral," Tonu's voice said from the loudspeaker. "I am young and I do not wish to die and I will go to Prometheus and live there the rest of my life if I must. But I do not wish to die. Not out 'ere. Not this way. Please, Dral."

"Okay," he said softly, more a sigh than a word.

"Thank the Facets!" the girl cried. "Dral, you will not regret it. I promise. I swear."

"Okay, I believe you. We might as well get started before I get cold feet."

"What do you wish me to do?"

"There's a tool kit somewhere in the lifeboat. See if you can find it and bring it. Bring a hull patch kit too. You'll have to get the cubicle sealed up. And see if there's a B-3 size spacesuit. I'll have to have one, you know."

"Let me look." For a few moments rummaging sounds came from the speaker. Then the girl returned. "I found them, Dral. But there is no B-3 spacesuit. Will a B-4 do?"

"That's close enough. Bring the stuff and come on."

"I will be there soon."

"Tonu?"

"What?"

"Don't come armed."

"Oh!" she cried. "I will not, Dral. I would not even 'ave thought of it."

"Okay. Come on."

Dral watched as the nebula's light revealed the girl stepping from the gap in the blister, carrying a burden she could not have lifted in a normal gravitational field; even in weightlessness the size of the two kits and the spacesuit she carried were awkward, giving her a clumsy, inhuman appearance. She walked slowly across the metallic hull, not lifting one foot before the magnetic clamp of the other was firmly seated against the hull. Her suit radio crackled into life.

"I am sorry that I am taking so long," she said, "but all this is 'ard to 'andle."

"That's okay," he said. "I can wait."

As she came closer he began to tell her of the problems she faced in reaching him. "You're going to have to get on the other side of the hull," he said. "The inside, I mean. There's no way to get into the cubicle from this side. You'll have to take all that stuff with you and find the cubicle from the bottom."

"'ow do I get there?"

"There's an airlock seven or eight meters from where you are," he said. "Over to your left. Chances are its warped and won't open. But give it a try. We can't lose anything, and you'll have a problem if you have to drag that equipment all the way over the edge and back under."

The girl was now nearing the air-

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lock, her hand-torch searching for it.

"A little more to your left," Dral said.

"I see it," the girl answered, illuminating the airlock hatch with her torch. "Dral, it is open."

He could not see the torch in the girl's hand, only its light falling on the partially open hatch, making it appear to glow with a light of its own. And in the reflected glow of the torch, bouncing back against the girl's spacesuit, Dral could see the dreaded symbol of the Thorna, a galactic disk pierced by a spear, a threat, a promise of galactic conquest. He felt a chill creeping up his spine, but ignored it

"Warped," he said, almost absently "How far?"

"Wide enough for me to get in."

"What does the inner hatch look like?"

"Let me see." The girl put her head and the torch into the open hatch. "It looks fine to me," the voice said from the loudspeaker.

"Go on in and see if you can get it open."

Dral listened to Tonu's heavy breathing as she worked herself and the equipment she carried into the opening. He did not let himself think about anything beyond the problem of getting her into the cubicle "below" the turret.

"What do I do now?" she asked.

"There's a manual control beside the hatch. See if it will turn."

"I see it," Tonu's voice came back. A few moments later, a gasp of effort came from the loudspeaker. "I do not think it will turn, Dral."

"Try it again. To the left."

"Very well," the girl answered. Then there was silence broken only by the girl's heavy breathing.

"Dral, it will not turn."

"Are you turning it to the left?"

"Of course!" the girl's angry voice came back.

"Try it again. Just one more time. It'll be a long trip if you have to go around."

"Very well," the girl said again with a disgusted sigh. "It moved!" she yelled a moment later. "I think so. Yes, it is opening."

"Good," Dral said.

"I 'ave it open now, Dral."

"There's a corridor in front of you, right?"

"Yes."

"Turn right and five or six meters down there's a hatch. That leads into the cubicle."

"I see it."

"Take your equipment in there."

"What do I do then?"

Dral waited until the girl had dragged the two kits and the spacesuit into the cubicle before answering.

"What kind of shape is it in?" he asked at last. "You'll have to make it airtight before I can open my hatch."

He could hear the girl's movements through the metal as she closed the hatch and dogged it.

"How does it look?" Dral asked.

"The 'atch was standing open," she answered, "but I cannot see any damage. The fuel cells look perfect."

"Will the hatch close all the way?"

"Yes."

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"Maybe that was the only problem."

"How do we find out?"

"I only know of one way," Dral answered slowly. "Look, check every inch of that place for openings. It's going to be dangerous."

"It looks fine to me," the girl said after a long while.

Dral did not answer at once. Something like fear was in his throat as he carefully maneuvered himself out of the chair, holding his tender right leg out before him, and pushed himself down to the deck and the hatch that led into the compartment "below."

If she had lied, if she weren't what she claimed to be, if she only wanted the fuel cells and didn't care about him — well, he was about to neatly kill himself for her.

His fingers wrapped around the manual wheel set in the deck, and slowly he began to turn.

"When it opens," he said into the throat mike, "the air from up here will rush in, so watch it. I'll hold my breath, but it'll take a while for my recycler to bring the pressure in both compartments back up to normal, so if I blackout for a moment, don't be frightened."

"Dral," the girl cried, seeming to realize for the first time what he was about to do, "don't let anything 'appen to you. If it does, what will I do?"

"It's all right," he said, feeling the hatch begin to give, hearing the first hiss of air seeping past the edges.

Then the pressure of the air in the turret tore the wheel from his hands as it rushed "down" into the vacuum "below." He gasped, filling his lungs with the wind, and then shut his mouth and nostrils. Even as the air thinned he heard the whine of the air recycler rise as it forced more of its precious oxygen store into the compartment.

Spirit! he cried to himself, feeling the air pressure continue to drop, a strange feeling coming over his weightless body. Spirit, she's trying to kill me.

Long, agonizing seconds later he could hold his breath no longer, and involuntarily began to gasp for air. A grayness came over him and as he lost consciousness, he cursed the girl from Scylla.

VI

"Dral, Dral," he heard his name coming from a long, long way off, coming through a gray, formless, meaningless mist. "Dral," the familiar spirit voice said. "Dral, please wake up."

Slowly the gray mists began to dissolve, and through them he could see a face, a beautiful spirit's face from some nether world outside his cosmology. It was a tanned, dark-haired face, with large green eyes and a small nose and full red lips — a vision of sensual beauty from such a dream as men have who are too long without women.

"Oh, Dral, please," the vision said.

"Tonu?" Dral heard himself weakly asking.

"Yes, it is I? Are you well?"

"I thought . . ." He tried to move

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and suddenly found that he was strapped into the seat before the cannon console.

"You passed out. I was frightened."

"I'm okay," he said, looking into the face of the spacesuited girl, seeing that she was even more beautiful than he had hoped. "Help me into that spacesuit."

"You want it now?"

"I'd better put it on," he said, releasing the straps that held him. "Don't take yours off now. It shouldn't take us long to get the fuel cells loose."

While the girl helped him out of the torn combatsuit and into the spacesuit she had brought from the lifeboat, Dral cursed himself for the doubts he had had about the lovely, frightened girl. She was, in fact, everything she had said she was. He was sure of that now. He *could* trust her.

It was fortunate that the spacesuit she had brought was large, for even then they had trouble getting it on over the cast on his leg, but get it on they did, and a few moments later she was assisting him in going down into the equipment compartment below.

"Well, those are the fuel cells," he said. "First we have to turn them off and disconnect them. But we'd better leave one or two on so we'll have light to work by."

Tonu watched as he removed the first of the power cells, and as he began working on the second, she began to disconnect the next in line. They spoke little as they worked, but Dral thought of the lifeboat and the long, long trip to Prometheus. Spirit, he said to himself, things are going to turn out well after all.

In less than an hour they had disconnected four cells.

"This is enough," he said. "We'll each take two of them. I'll bring the tool kit, if you'll carry my varmel."

"No," she said. "You take the varmel. You are going to 'ave trouble enough with your leg as it is."

Dral consented and let Tonu go back up into the turret to get the instrument and its case.

"I guess we're ready to go," he said when she returned. "You lead the way. It's going to be slow going for me."

Together they broke the seal on the compartment's hatch and let the precious cargo of air escape into the void. Then, Tonu first, Dral awkwardly following, they went down the corridor, lit only by Tonu's torch, and made their way toward the airlock.

At last they were out on the hull. Dral looked back at the paraglas dome of the cannon turret, where he had spent an eternity of waiting, and sighed relief. Now they were going home. At last, Dral was going home, and Tonu was going with him, safe and alive. They would simply connect the fuel cells into the lifeboat, blast away from the hull fragment, set the computer for Prometheus, Jump — and in two months or so reach safety.

The Cranrein Nebula rose, arched across the black sky and fell as they made their slow, awkward way across the hull, among the hills and moun-

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tains of twisted metal. Once, as they went, Dral saw a form silhouetted against the stars, a form that had once been a living man, drifting now in an eternal orbit around the torn hull, and for an instant fear and horror came over him. Tonu, lovely Tonu, had been in the crew of the ship that had done that to *Rakewind* and to the men who had been Dral's friends. *Had been,* he told himself. But no more. Now she was a lonely, frightened girl who looked to him for safety.

Finally they came to the lifeboat blister, worked their way in through the torn metal and entered the tiny lifeboat. Carefully placing the fuel cells where they could not drift far in free fall, Dral strapped his cased varmel into one of the seats and waited as Tonu sealed the airlock.

A few moments later Dral unsnapped the clamps on the spacesuit helmet and took it off.

"Help me get out of this suit," he asked the girl as she turned toward him.

"Let us leave them on," she said.

"Why?"

"I would rather for a while," she answered, turning toward the ruined fuel cells in the rear of the boat. "I would feel better until we get the new fuel cells in place."

"Why?" he asked again. "We'd be more comfortable without them."

"I do not 'ave anything on under my spacesuit," Tonu answered at last. "Show me 'ow to put the cells in," she said quickly, as if to cover her embarrassment.

"Okay," Dral said smiling and turned and made his way to the shattered cells. A fragment of metal had torn through the lifeboat's hull, smashed through the fuel cells before ending its flight against the far hull. Tonu had put a patch across the rent in the hull, but the fuel cells were beyond repair.

"Well," he said, anxious to finish the job so Tonu would take off her spacesuit, "they're just like the ones we brought. All we need to do is take this loose here, break that connection . . ."

Dral turned to look at Tonu, to make sure that she was following what he was saying — and saw that she held in her hand the black metal of a paralizer, aimed toward him.

"Tonu!" he cried.

A sharp buzz broke from the weapon. He tried to move, to throw himself toward her, to tear the paralyzer from her hand, but even then it was too late. Even then he was loosing consciousness. Even then blackness was taking him . . .

VII

The slow return to consciousness was a painful, agonizing thing, every nerve of his body rebelling against the life that stirred in his limbs. But to consciousness he did return.

Dral Mancil was sitting in one of the lifeboat's seats, his spacesuit removed, his hands tied behind his back. His varmel was in the seat beside him.

Standing before him, dressed in the soiled, wrinkled maroon uni-

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form of an officer of the Thorna Warfleet, was the beautiful girl who called herself Tonu'Lehani. The paralyzer was still in her hand, and there was an unpleasant smile on her lovely lips. The lifeboat was brightly lighted, powered by energy from the fuel cells Dral had helped her bring from the ruin of *Rakewind*.

"Do not blame yourself, Dral," she said slowly. "Better men than you could ever be have been deceived by women."

"Damn you!" he cried. "By all that Spirit loves, damn you."

"Do not feel that way."

"Damn you, how can I feel?"

"This is war, Dral. The future of 'umanity 'angs in the balance."

"And you and your kind will see it destroyed," he said through the swelling blackness of despair.

"No, we will make it into something better."

"What do you want with me?" he cried. "Why didn't you kill me when you had the chance?"

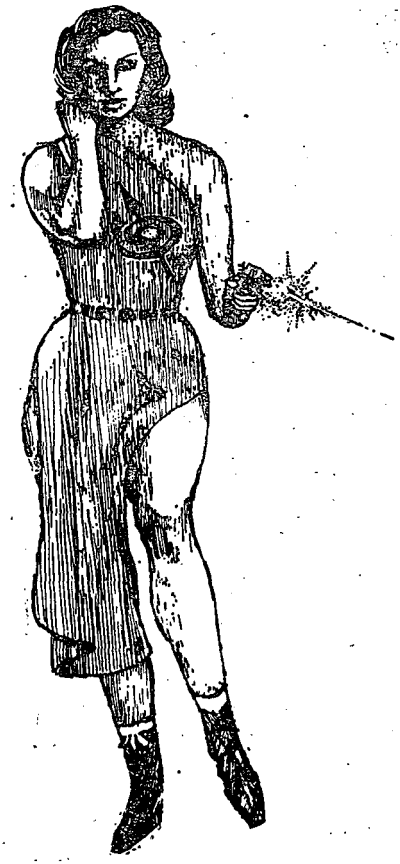
"I cannot kill you, Dral. You are too valuable."

"Valuable, hell! You knew how to replace those cells."

"I do not mean that," she said slowly. "You are valuable to the Thorna. You are the only survivor of a warship that was able to pass within a few light-minutes of Sindukht without detection. *We* want to know 'ow you did it."

"Hell, woman, I don't know. I'm no engineer."

"I know that *you* do not *know*," she said almost angrily. "But what does your subconscious know? 'Ow many conversations did you overhear



that you did not understand and forgot? Those memories are still in your subconscious. Perhaps an engineer would understand them."

"How are you going . . ." His voice broke off as horror rose in him, as a terrifying realization came to him.

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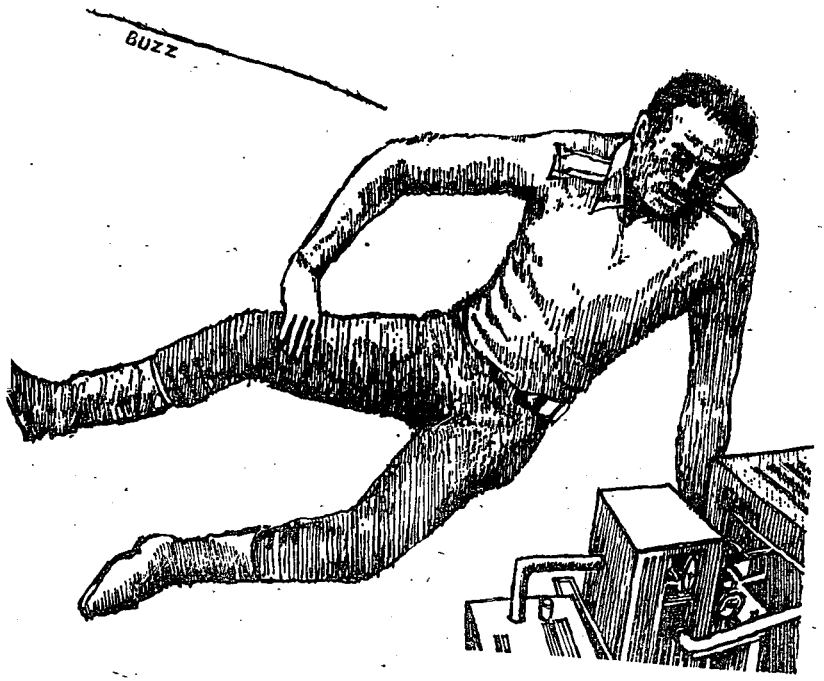
Tonu smiled again and slowly ırned.

The back of her maroon uniform louse was cut low, half way to her 'aist, to allow room for a greenish-ray blob that rested between her ıoulder blades, a blob of alien flesh ıat pulsated with a life of its own, ut was somehow a part of her, a art of that lovely body that was uman, whose mind was not, not uite.

"My Little Brother is ready to reroduce, Dral," she said, turning ack. "It 'as been ready for several ays." Dral screamed, but she continued to talk. "They can reproduce in several ways, you know, but one way is the oldest, the most simple. Fission. Splitting apart. My Little Brother is ready to give birth, Dral. The Throna needs your mind, and *it* will need a 'ost."

Dral screamed again and tore at the bonds that held his hands.

"I will give you time to become calmer," she said. "It will take time to prepare itself. In the meantime, I will program the lifeboat's computer." She turned and went toward the bow of the boat. "By the way," she said he she seated herself before



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the controls, "we will not 'ave to wait long. A starship is on its way from Sindukht. I was not worth their sending a ship for. They would 'ave let me die out here." The thought did not seem to bother her. "But you *are* worth it. The ship will be here within a few hours." Then she turned her attention to the controls.

This was the ultimate horror, so much of the darkness and superstition of mankind's history had dwelt upon this subject: Possession, one's mind and one's body being taken over by something that was not human, something alien and horrible. And now Dral Mancil was told that he was about to be Possessed.

No! something inside him screamed. No! No! No!

The bonds that held his wrists were tight and strong. He pulled and tore at them with all his strength, but they would not yield. The thin ropes cut into the flesh of his wrist; he felt the warm moistness of his own blood drifting free in the air. And all the while he stared at the blob between the girl's shoulder blades, the hideous greenish-gray blob that lived, and tore the harder at the rope.

A few minutes later the girl rose from the controls.

"We are ready," she said. "In a moment I will blow the explosive charges and blast us free of this wreckage. We will get out away from the wreckage where we will be easier to find. Then we will do what we 'ave to do. The Thorna may 'ave little time. *We* do not know just what you *people* may 'ave."

The horror and hatred he felt were such that he could not speak.

"Be calm," the girl said, her words touched with sarcasm.

She seated herself in the pilot's chair, strapped herself in and reached for the switch that would blow the blister away from the lifeboat.

"Brace yourself," she said. Her hand fell toward the switch.

As her extended finger found the switch, Dral threw himself forward, pulling with all his strength at the ropes on his wrist. Charges exploded in a ring around the lifeboat. The blister broke apart, the pieces flying away from the hull fragment. Chemical rockets came to life. Inertia was overcome and abrupt acceleration began. The lifeboat blasted way from the torn hull of the dead *Rakewind.*

A force of many G's threw Dral back against the seat, back against his extended, rope-bound hands. His body, suddenly weighing close to five hundred kilograms, smashed back against his arms. Something under him crushed and tore as the lifeboat lifted, flesh and bone dissolved under the pressure. And Dral Mancil felt the life go out of his left hand, felt numbness replace sensation in his fingers, felt heavy, warm blood gush from a shattered, lacerated wrist.

"We are on our way," the girl said, glancing over her shoulder as the forces of acceleration grew less. "I will be ready in a few minutes."

Dral remained still.

The blob of flesh on her back moved, its center rising to form an extention, a pseudopod of flesh that

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would become another like itself, a creature to consume the mind of a man, to make Dral Manil into something less than human.

Dral's hand was sticky with blood as he moved it slowly, carefully toward the buckle of the strap that held him in the seat. His fingers reached the buckle, pulled on it — click. The sound was faint, but to Dral it sounded like the trump of doom. The girl did not hear. Her attention was focused on the control board before her, or on the thing writhing in birth pangs on her back.

Dral was free. His left arm was still behind him. He did not wish to see what was left of his left hand.

In the seat beside him, a strap holding it in place, was his varmel, the varmel a strange Terran fugitive had given to his father's father's father, the varmel that had sung songs to the stars, that was the most beautiful of objects and beyond price — the varmel that was Dral Mancil's only weapon, the only thing that stood between him and the hell on the girl's back.

With his bloody right hand he released the strap that held the varmel and wrapped his fingers around its long neck, feeling for the first time in "days" the weight of an object as the lifeboat's acceleration provided "gravitation." He put his feet against the base of the seat in which he sat, tentatively tested their strength, hoped his broken leg would function, if just briefly, and said a fleeting prayer to holy Spirit.

Now the acceleration of the lifeboat provided a force pressing him back equal to just a little less than the gravitation of his home planet, Galatea, but the induced gravity ran through the long axis of the boat, making it necessary for Dral to leap almost straight "up" toward the Thorna girl who sat at the control board, maybe three meters "above" him.

His legs held him as he leaped "upward," vaulting the seat before him, stumbling, climbing, jumping all at once, swinging the varmel even as he moved, swinging the varmel toward the blob that pulsated on her back.

The girl should have heard him. Perhaps she did, but was slowed by the thing on her back that was now almost two distinct objects. As Dral stumbled/climbed toward her, her head turned just slightly, as if she heard some distant sound.

Then he was there, within striking range, and she moved, like a slow motion picture, her hand reaching for the paralyzer at her hip. But the cased varmel was swinging against the Little Brother — the case broke, wood shattered, metal strings twanged, flesh dissolved — Tonu' Lehani screamed as the varmel crushed the thing on her back.

Dral fell "backward," his broken leg refusing to hold his weight any longer, tumbling "down" the seats he had climbed, falling toward the stern of the lifeboat.

Tonu writhed in the control seat, the straps still holding her in place, blood and bits of greenish-gray flesh falling, splattering the seats, showering Dral when he finally came to agonized rest. Her body jerked horribly. Her fingers clawed at the

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remnants of the dead thing between her shoulder blades.

"Dral!" she screamed. "Dral! Facets! 'Elp!"

And then she quit screaming, and her body became limp. She too was dead, like the thing that had possessed her.

VIII

The rest to Dral was a gray darkness, a time when somehow he acted, but did not think to act. He moved the girl's body and bandaged his own shattered wrist. Then he turned the lifeboat around and carefully maneuvered it back toward the wreckage of *Rakewind*. Somehow he had gotten back into his spacesuit and when the boat made contact with the wreckage, climbed out and made his way to the cannon turret.

Now he sat in the seat before the cannon's console, meters indicating that there was energy enough in the remaining fuel cells to fire two or three blasts at full power. Then he waited.

Maybe, some still rational part of his mind said, maybe he could have gotten to Prometheus, but it wasn't likely. Not now. Not with a Thorna warship within a few hours of arrival. He could have tried to run and probably would have been caught — either captured or blasted out of the sky. This way was better. They wouldn't expect this, even if they knew the girl was dead. They wouldn't expect Dral to have gone back to the turret, to be waiting for them.

No, he told himself, this way is better. This way I can make it worth something.

He thought a little of Tonu, what it could have been like if she . . . And he thought a little about his varmel . . . But he did not think very much about anything now. He simply waited.

And after a while a Thorna warship broke from Non-space into the real universe and was visible on the laser-radar screen of the console. Dying machines, power running out, looked at the alien behemoth as it approached the wreckage, held the monster craft within their sights until their master, until Dral Mancil would press the FIRE button at last, at long, long last.

Dral looked one last time at the place where the lifeboat had been, at the naked, ugly horizon of twisted metal. Then he turned his eyes skyward and watched as the starship neared, watched until its glowing, protecting field of energy collapsed so it could approach the wreckage.

Then he was sure. Then it was time to press the button.

He did.

The Thorna warship was already a dying thing when its missiles found the wreckage of *Rakewind*.

The Minstrel fell, but the foeman's chains
Could not bring that proud soul under.
The harp he loved never sang again,
For he tore its cords asunder,
And said, "No chain shall sully thee,
Thou soul of truth and bravery.
Thy tones were meant for the
pure and free,
They shall never sound in slavery."

Thomas Moore

END

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Until Armageddon

by DANNIE PLACHTA

Problem-solving is a job for computers. How better to solve a problem than this?

The El Al verticraft, its wing lights tilting red and green in the paling dusk, whispered down and landed within a hundred meters of the bone-white tower.

As the crowd on the Albert Einstein Polytech Green millimetered forward and the Premier's Own Band shattered the sullen air, Madam Molly Feldstein walked over to greet the deplaning Pope. A million exulting voices cheered the band into virtual pantomime as the Premier and the Pope made their way together to the great building's entrance.

Far, far above them, a dozen nuclear flares momentarily blazed and slowly died while the clump of humanity grew outward and flourished among box lunches and picnic baskets.

Field Marshal Levi-Ferrari saluted smartly as the two leaders and their entourage departed from the lift at the uppermost level. The military genius, the World's Grand Master of Games Theory, escorted them across the bubble-topped, star-domed lobby into the Most Holy-of-Holies — the computer control room.

"Very nice, Madam Feldstein," said the Pope, nodding his approval.

"Thank you, Your Holiness," said Madam Feldstein, nodding her appreciation.

"I hope it works," said the Pope, smiling.

"I pray it does," said Madam Feldstein, smiling.

"We shall see," said the Pope.

"Yes," said Madam Feldstein.

They approached the control

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board to the point where a thin silken ribbon spanned tautly across their path. "Your Holiness," bowed Madam Feldstein, handing him the fully transistorized electric carving knife.

"It is with a hopeful heart and a prayerful mind that I do rend this barrier," intoned the Pope, while several score flashbulbs erupted behind him.

"God grant that it may work," sighed Madam Feldstein, while several score shotgun mikes poked near her face.

"How very strange," mused the Pope, his gentle eyes wandering over the intricate panel. "We have appealed for so long to the hearts and minds of men for peace, and now, as a final resort, we must put our faith and trust in a machine." He shook his head sadly.

"They wouldn't listen," lamented Madam Feldstein, shrugging slightly. "Even now, the Red Reds are laser-rattling. And the Yellow Reds . . ." The Pope stiffened and clenched his fists.

"And the United Arabs . . ." murmured the Pope. Madam Feldstein stiffened and clenched her fists.

The Pope reached out and almost, but not quite, touched the control board. "Perhaps this great machine, towering toward the tranquil heavens, will supply us with the answer we all so earnestly desire."

The room was solemn as he blessed the panel.

"It was conceived and constructed in the name of peace," said Madam Feldstein quietly. "We must ask it how to achieve that end."

Field Marshal Levi-Ferrari indicated a large green button. "When that button is pressed, the device will be operable." He pressed it.

The room waited.

"Use the microphone," offered the Field Marshal.

Madam Feldstein grabbed the mike, and with an air of historical dignity, spoke: "Hey, computer . . . So say something already." She smiled at the Pope. The Pope smiled back.

Beneath their feet, the floor murmured soothingly. In front of them, next to the stencilled Star of David, a tiny red light winked on.

"It's high time I returned," said the computer. "The Hour of Judgment is at hand." END

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The Jew in Science Fiction

by SAM MOSKOWITZ

Saints and sinners among the characters in sf stories — and those who write them, too!

Virtually a latter-day Christ is Saint Isaac Edward Leibowitz, who has been canonized as the Patron of the Albertian Order of St. Leibowitz, a Catholic institution that strives to keep the light of knowledge alive after the first atomic war.

Like Christ, Leibowitz, a scientist, was betrayed to the mob — hungering for the lives of all men who had played some role in bringing about the world holocaust — by an associate, a fellow technician. He was "simultaneously strangled and roasted" to death, becoming a martyr to the cause of preserving knowledge under the cloak of religion.

Quite appropriately, he was a Jew; and if there was the slightest doubt about the question, it was confirmed by the discovery of scribbled notes in his handwriting which said: "Pound pastrami . . . can kraut, six bagels — bring home for Emma." The utterly remarkable and fascinating account of the consequences of his heroism is chronicled in *A Canticle for Leibowitz* by Walter M. Miller, Jr. (Lippincott, 1960). It is one of the landmarks in modern science fiction.

Leibowitz is not the only Jew in the novel. The other is Benjamin Eleazer, *the* Wandering Jew, eternally aged and immortal — a confidant of the priestly hierarchy, who unifies the episodic novel. The Wandering Jew, a common figure in the literature of the past 300 years, first appeared in *Flores Historiarium,* a manuscript written by the monk Roger Wendover in 1235; he may be truthfully said to have fathered the

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immortality concept in science fiction.

The Jews are directly responsible for popularizing two major themes in science fiction: the robot, descendant of the legends of The Golem (and simultaneously the notion of artificial creation of life), and the physical superman from the story of Samson, told in Judges in the Old Testament.

The Jew is treated sympathetically in *A Canticle for Leibowitz*. The "Saint" himself nobly tried to preserve the knowledge which he hoped would constitute the basis for the rehabilitation of mankind. While the remainder of mankind seeks to destroy every remnant of the knowledge which brought them to disaster, Leibowitz organizes "booklegging" groups to smuggle out valuable references wherever they may be found and to bury them in kegs for future reference.

Symbolically, Miller has again made the Jews the people of the book, the worshippers of knowledge. During the long period following the Diaspora (the dispersion of the Jews after their conquest by the Romans between 100 and 200 A.D.), first the Palestinian and then the Babylonian Talmud were compiled. These volumes contained the basic "laws" and philosophy, together with commentaries, which were the guide to Jewish life. Great campaigns by enemies were conducted in which these volumes were gathered and burned. The knowledge was saved by Talmudic scholars (common in Czarist Russia), who memorized all or parts of the Talmud. Such men did not work, but were supported by their wives, were greatly honored and spent all their lives in perusing the Talmud. The Jews could be driven from place to place, but the entire structure of their way of life went with them, regardless of how many books were burned.

Leibowitz, similarly, had staffs of "memorizers," who committed key books to memory so that they could later be written down again. Drawing a parallel to the method of the Jews before him, Leibowitz saw to it that only paper and not knowledge was destroyed.

Science fiction, because of its faith in the future of science and its remarkable record of accurate technological predictions, has gained a reputation as a literature of enlightenment and progressiveness. Though the tone of *A Canticle for Leibowitz* is one of warm affection for the Catholic church, with a good-natured wink at its defects, Walter Miller's attitude towards the Jews is also one of tolerance and good feeling.

Have the Jews in the past found the science-fiction writers to be as understanding as Miller? Have they discovered in the writers of this medium champions against the inequities which have traditionally been their lot? Do stories concerning them project a liberal, forward-looking view, as might be expected from a seer of science?

If we are to shunt aside the involvement of The Wandering Jew in literature (a subject large enough

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for a separate tract by itself), one of the early appearances of a Jewish character in an important work of science fiction is that of Jules Simon in Fitz-James O'Brien's landmark "The Diamond Lens" (*Atlantic Monthly*, January, 1858). The story deals with a young man who seeks to grind the ultimate microscope. He finds, through a medium, that he needs a diamond of extraordinary size to make the proper lens. In his boarding house he has made the acquaintance of Jules Simon and says of him:

> I think that Jules Simon was a Jew. He had many traits of the Hebrew character: a love of Jewelry, of dress, and of good living. There was something mysterious about him. He always had something to sell, and yet went into excellent society. When I say sell, I should perhaps have said peddle; for his operations were generally confined to the disposal of single articles, — a picture, for instance, or a rare carving in ivory, or a pair of duelling-pistols, or the dress of a Mexican *caballero*.

He discovers that Jules Simon owns a diamond of the size he needs to build his microscope and determines to kill him for it. "After all, what was the life of a little peddling Jew, in comparison with the interests of science? Human beings are taken every day from the condemned prisons to be experimented on by surgeons. This man, Simon, was by his own confession a criminal, a robber, and I believed on my soul a murderer."

He stabs Simon to death, steals the diamond and builds the microscope he has planned. The famed story of the beautiful girl, Animula, who he sees in a drop of water, and of his breakup when the water dissolves, resulting in her end, is well known.

What reflects interestingly upon O'Brien's attitude towards Jews is that his hero is not punished for his murder. His breakup is treated as a poignant tragedy, and the murder of Jules Simon is justified on the basis that the man is a Jew. In the story, Simon has never done an unkind thing to the hero. To the contrary he has assisted him in numerous ways, yet the inference is made that because the man is a Jew, he is probably also a murderer.

One other episode in another of O'Brien's fantasies reveals his feeling towards Jews. In the opening pages of "The Wonder-Smith" (*Atlantic Monthly*, October, 1859), he discusses Golosh Street on the east side of New York as follows: "It has never been able to shake off the Hebraic taint of filth which it inherits from the ancestral thoroughfare. It is slushy and greasy, as if it were twin brother of the Roman ghetto."

The Jewish "taint" gives the street the ominous evil to support the foul machinations of Herr Hippe, a man who makes mannikins, instinct with fiendish life, to commit foul, senseless killings.

New York of that period had a relatively small Jewish population of German Jews, noted for their self-help and philanthrophy. A Jew

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to seek public assistance, regardless of how impoverished, was virtually unknown. No Jew had ever been buried in Potter's Field. O'Brien's association with the Jewish population could have at best been marginal. No reference to Jews appears anywhere in his biography. His attitude would seem to have reflected a stereotyped prejudice.

A far more startling anti-Jewish attitude appeared in a major novel of Jules Verne, *Hector Servadac of the Career of a Comet*, published in 1877. A near collision with a comet appears to have torn a section off the Earth, including part of the seacoast, and plastered it around the sphere of a comet, though this is so unclear as to utterly defy rationalization or scientific explanation. The "heroes" of the novel are Captain Hector Servadac, an officer stationed in Mostaganem, Algeria, and his orderly, Ben Zoof. They find a number of other humans stranded on this runaway comet with them, including the crews of two ships.

One of the ships is owned by Isaac Hakkabut, a native of Cologne, and is stocked with quantities of food and other supplies, which are to form the margin of survival for all the "castaways." When Servadac and Zoof first encounter Hakkabut, four Spaniards are forcing him to dance to the point of exhaustion. When he appeals to Servadac for help, Zoof "ordered the Jew to hold his tongue at once."

Though this is the first time Servadac has set eyes on Hakkabut, his appraisal of the man is as follows: "Small and skinny, with eyes bright and cunning, a hooked nose, a short yellow beard, unkempt hair, huge feet, and long bony hands, he presented all the typical characteristics of the German Jew, the heartless, wily usurer, the hardened miser and skinflint. As iron is attracted by the magnet, so was this Shylock attracted by the sight of gold, nor would he have hesitated to draw the lifeblood of his creditors, if by such means he could secure his claims."

In appraising their difficult situation, another member of the party comments: "We have only a fragment of a world, but it contains natives of France, Russia, Italy, Spain and England. Even Germany may be said to have a representative in the person of this miserable Jew."

The venom against the hapless Jew is augmented by the fact that he is a *German* Jew, and the author, Jules Verne, is French. They talk of appropriating his stock, but then decide they will pay him on their own terms for what they need, since the money is useless to anyone.

The baiting of Hakkabut provides the diversion for the *entire* story and is the major sub-theme of the book. Verne eventually makes him out to be a contemptible miser, an opportunist, a cheat with dishonest scales; but for the first half of the book's considerable length he offers no tangible evidence of this fact if we except precognition.

When Hakkabut disbelieves the story that they have been carried off on a comet and speaks to various members present in four different languages, Servadac's reaction is:

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"but whether he speaks French, Russian, Spanish, German, or Italian, he is neither more nor less than a Jew."

As the book proceeds the Jew-baiting mounts to such an unbelievable intensity that one is ashamed of and embarrassed for Jules Verne. A score of lines throughout the book read: "vicious . . . greed and avarice of the miserable Jew," or "His oaths (Hakkabut's) were simply dreadful; his imprecations on the accursed race were full of wrath," or "His uncomely figure and repulsive countenance . . ."

When the group is escaping from the comet, returning to Earth, they note Hakkabut has the money they have paid him for his goods (plus his previous wealth) strapped around his body. They make him discard it as the price of returning him alive to Earth.

Back on Earth, "for Isaac Hakkabut alone there was no feeling of regret. Doubly ruined by the loss of his tarton and by the abandonment of his fortune, he disappeared entirely from the scene. It is needless to say that no one troubled himself to institute a search after him, and as Ben Zoof sententiously remarked, 'Perhaps old Jehoram is making money in America by exhibiting himself as the latest arrival from a comet.' "

The only rationalization that can be made for Verne is that for several years previous to the writing of this book he had been plagued by a widespread story that he was a converted Polish Jew, actually named Jules Olschewitz. Verne was a Roman Catholic by birth, so it cut him all the more when a Polish priest, Father Semenko, in Rome, affirmed that he did indeed know of a Polish Jew named Julian de Verne, whom he had converted to Catholicism. Linguistically Olschewitz derives from the Polish word *olscha* which means alder. The French counterpart for alder is *Vergene,* spoken as Verne.

Brutally driven from other countries of Europe, many Jews had settled in France; and anti-semitism, as a result, was ascending towards the crest of the Dreyfuss case (1896). Strangers rang Verne's doorbell and accused him to his face of being a Jew. When he goodnaturedly embellished it for them, along with sly references and a wink about his circumcised state, the rumor traveled like wildfire and has never been completely stamped out to this day.

It might be asked if Verne represented a European view, whereas the United States, which was built by the labor and genius of the foreign-born, undoubtedly had a more enlightened attitude. A reply may be found within the context of one of the landmarks of American 19th century science fiction, *Caesar's Column: A Story of the Twentieth Century,* written by Ignatius Donnelly, the vacillating and bombastic Republican politician, and published in 1890 under the pen name of Edmund Boisgilbert, M.D. The book sold extremely well — over a quarter of a million copies. It is a "dystopia," spotlighting the world of

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1988, where despite such scientific progress as international air travel, white light, wire transmission of newspapers, pushbutton meals, air conditioning, heat from the depths of the Earth, legalized euthanasia, an instrument for judging the health of the body through its electrical emanations, the masses are oppressed and kept in poverty by a wealthy oligarchy of capitalists.

The ruler of the land is Prince Cabano, whose real name is Jacob Isaacs.

"Isaacs," repeats the visitor — here from Uganda, "is a Jewish name."

"Yes," is the answer, "the aristocracy of the world is now almost altogether of Hebrew origin."

"Indeed," is the comment, "how does that happen?" And the answer is "it was the question of the survival of the fittest. Christianity fell upon the Jews, originally a race of agriculturists and shepherds, and forced them, for many centuries, through the most terrible ordeal of persecution the history of mankind bears any record of. Only the strong of body, the cunning of brain, the long-headed, the persistent, the men with capacity to live where a dog would starve, survived the awful trial. Like breeds like; and now the Christian world is paying, in tears and blood, for the sufferings inflicted by their bigoted and ignorant ancestors upon a noble race. When the time came for liberty and fair play the Jew was master in the contest with the Gentile, who hated and feared him."

The controlling Jews rule the world by use of aluminum-armored soldiers who drop bombs and poison gas from the air whenever there is an uprising.

"The world is to-day Semitized," the Ugandian is told. "The children of Japeth lie prostrate slaves at the feet of the children of Shem; and the sons of Ham bow humbly before their August Domain."

The title, *Caesar's Column,* is derived from the gigantic cement monument built over the dead bodies of 250,000 of the upper class, almost entirely Jewish, after a revolution of the masses.

Donnelly's attitude reflected the amazement of the times, that the pack pedlars, junk dealers and sweatshop workers were able to produce men of achievement not only in business, but in other fields as well. His "logical" explanation was that centuries of persecution had bred a race of supermen, not only capable of taking over the world, but certain to exact vengeance once they had accomplished that task.

It can be said that in *popular* fiction for the masses, Donnelly's view of the Jew was not a majority view. Col. Prentiss Ingraham, one of the most capable of the dime-novelists, wrote *The Jew Detective; or the Beautiful Convict* for BEADLE'S NEW YORK DIME LIBRARY, July 1, 1891. The detective here is a Jew who heroically clears a non-Jewish woman who has been falsely sent to jail

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for murder. When he asks her hand she replies: "You say you are known as Judah the Jew. Well, I have been called Cora the Convict, and though I am not a Jewess, my Christian friends deserted me in my anguish and danger, and you have been my truest, best friend through all, and to you I now turn for happiness in life for your people shall be my peopeople, your creed my creed, and your God my God."

When the Russian government officially embarked on an anti-semitic policy after the murder of Alexander II in 1881, Jews frantically tried to escape westward as they once had been driven eastward. In Germany, Austria and France they were met with the most extraordinary viciousness. Seventy thousand Jews flooded into London, Manchester and Leeds between 1881 and 1891; over a million emigrated to the United States between 1881 and 1905. While at first the British were fearful that cheap labor would cost them their jobs, there were no anti-semitic outbreaks such as in Russia, Germany and France; but the Jew did become a popular figure in the literature of the period, depicted both favorably and unfavorably.

The Russian treatment of the Jews plays a leading role in *The Angel of the Revolution* by George Griffith (1893), a man who today ranks high on the list of forgotten creators of science fiction, but whose book was one of the best-selling future war stories of all time. Major protagonists of the novel are Natas, a Jew who married a Christian woman in England, and his courageous, fighting daughter, Natasha. Natas' wife was cruelly killed by the Russians, and he was tortured by them and crippled for life. Accumulating a vast fortune, he takes under his wing a young inventor who has built a model for an internal-combustion engine, helicopter-type airship, admittedly patterned after the design of Jules Verne's *Albatross* in *The Clipper of the Clouds*.

When England enters a deadly war with Russia, in which a large part of her fleet is sunk by submarines and she is subjected to ruinous bombing by dirigibles, Natas, the Jew, builds a number of airships which, after a grim and prolonged effort, defeat the enemy. The commonly held belief, at the time, that the Jew had strange powers was expressed in the device of making Natas an accomplished hypnotist, who could use this power to influence men to do as he wished. Nevertheless, George Griffith's presentation of the horrors the Jews were suffering in Russia is not only sympathetic, but so graphic that, coupled with the wide popularity of the book, it may very well had a positive effect on the attitude of the British towards the Jews.

There is also almost no question that George L. Du Maurier for his famed novel *Trilby* (Osgood, McIlvaine, London, 1894) lifted his Jew with hypnotic powers, Svengali, from *Angel of the Revolution*. Where Svengali, like Natas, covets a Christian woman, Natas is honorable, whereas Svengali is a rapacious villain.

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In the very popular sequel to *Angel of the Revolution, Olga Romanoff or the Syren of the Skies* (1894), the Martians send messages warning of cosmic destruction of the Earth. George Du Maurier appropriates the device of messages from the Red Planet for his novel *The Martian* (1897), as well as making Leah Gibson, a Jewess, the heroine as a counterpart of Natasha of *Angel of the Revolution.* Griffith used a scientific device to communicate with the Martians, whereas the hero in *The Martian* receives thought messages in his sleep in the form of visualizing letters written in his own handwriting.

Though considerable critical analysis has been done on George Du Maurier, and many scholarly papers have been written on his ideas and influence, no one seems to have previously considered the obvious: that a man who wrote books closely related to science fiction might conceivably have obtained his ideas from other works of science fiction!

H.G. Wells claimed the Jewish Problem had no right to exist and pretended impatience with his Jewish friend and business partner Walter Low, with whom he jointly published *The University Correspondent* (1893). Yet he was not unaffected by the buildup of Jews in England, especially the fact that as Jews saved their money they tended to buy up the wretched tenements of their area of the city and become landlords. *The Invisible Man* (1897) clearly reflects this situation when Griffin, The Invisible Man, seeking a spot to continue his experiments, rents "a large unfurnished room in a big ill-managed lodging-house in a slum near Great Portland Street."

When he succeeds in making a cat invisible, the wailings of the animal from seemingly out of nowhere arouse the neighborhood. In telling his friend of the incident he states: "And there was someone rapping at the door. It was my landlord with threats and inquiries, an old Polish Jew in a long grey coat and greasy slippers."

The landlord suspects him of being a vivisectionist and begins questioning Griffin as to what is going on in the room. Griffin throws him from the room. The landlord comes back with an eviction notice. Assuming invisibility, The Invisible Man leaves after setting fire to the house to cover his trail.

In this portion of the story Wells has deliberately utilized a Jew as the sort of person who would readily evict a tenant from his premises, to make believable a necessary sequence. He also implies that setting fire to the home of a *Jew* would not be considered enough of a crime to turn his hero into a villain, and he has Griffin add: "— and no doubt it was insured."

The author who was fully in agreement with the unofficial sanctions against Jews by the continental nations was M.P. Shiel, an author born in Montserrat, British West Indies, in 1865. His anti-semitism was the most extreme of any known science-fiction writer, and his books without some direct or in-

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ferred slur at the Jews are in the minority. The most vicious of his novels was *The Lord of the Sea*, published in 1901.

Shiel saw the buying of land by Jews in England as an ominous thing. He shows almost half of England's land bought up by Jews; decrees go forth to the oppressed British farmers that they must wear a *fez with tassel* as the symbol of their peonage. Jews control the British parliament, and lecherous Jews grasp for lovely Christian girls without bothering to remove vestments of their prayer. Vicious, knife-wielding Jewish guards are everywhere.

The "hero" of the story, Richard Hogarth, made wealthy by finding a great diamond from a meteor, builds metal-floating forts which command the seas and bring England to her knees. He proclaims himself King of England, and almost his first act is a manifesto which will forbid Jews to own any land, to work on any land, to teach in any school (even their own), to attend any public school or university, to sign any legal contract, to preside at any official ceremony and which states that conversion is no salvation.

He buys Palestine for the Jews, divests them of all their property and ships them all out "so that the return to simplicity and honesty was quickly accomplished." When his rule is overthrown by a coup, Hogarth learns that he was actually born a Jew, though raised by an Irish father, and is also shipped off to Palestine.

Shiel is apparently one of those writers who is frequently talked about but rarely read. If he has been read, a discreet gentleman's silence has been maintained about the content of his novels. The Shiel revival, begun in 1929, was spearheaded in England by Victor Gollancz, a Jewish publisher, and included *The Lord of the Sea*. At least one misguided critic has termed it "a Messianic novel." Shiel formed early an *ober-mensch* (superman) philosophy, outlined in his novels, which not only includes views that foreshadow Nazi philosophy, but quite obviously deals with "a final solution" for the "Jewish Problem."

Shiel was strongly anti-Negro, anti-Oriental, anti-Christian and pro-war. One rumor emanating from London had it that there was Negro blood in his veins. In an attempt to check this out, a facsimile of his birth certificate was obtained from Montserrat. It does nothing to substantiate the rumor, but does reveal that he changed the spelling of his last name from Shiell to Shiel and that his father's full name was Matthew Dowdy Shiell, (a merchant of Plymouth) and his mother's name was Priscilla Ann; but her maiden name is not given.

A rather unique novel with a Jewish central character was *Pharoah's Broker, Being the Very Remarkable Experiences in Another World of Isador Werner* by Ellsworth Douglass, the pen name of an American writer named Elmer Dwiggins. The book was first published by C. Arthur Peason, Limited, London, in 1899. Isador Werner, a youthful and successful Jewish spec-

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ulator on wheat in the Chicago Exchange, finances the building of an anti-gravity spaceship which takes him and several companions to Mars. His knowledge of Hebrew proves invaluable when it develops that a young government overseer of the Martian civilization speaks Hebrew!

It slowly comes home to him that each planet goes through parallel developments in which the same incidents occur. Mars is developing at a slower rate than Earth (because its year is longer) and is in the period now when a Jewish "Joseph" has come into Egypt and is storing away wheat during the seven fat years to take care of the seven lean years. Werner sees a chance to change the history of this world, because if it follows as on Earth, the Martian Jews in a few years will go into bondage as slaves of the Egyptians. Utilizing his knowledge that the Martians are in the last of the fat years, he corners the market on wheat and feeds the poor so they will not have to agree to slavery in exchange for food. Pressure from the Pharaoh forces Werner's return to Earth where they promise a trip to Venus, a planet that should be 31,000 years in advance of the Earth in history, in the next book; but there is no evidence that such a book was ever written.

When Theodore Roosevelt admitted a Jew, Oscar Strauss, to the cabinet of the United States in 1906, he defended his choice with the statement: "Any discrimination for or against a man because of his creed or nativity strikes me as infamy." James Creelman, in agreement with Roosevelt, departed from his muckraking articles of the period and wrote for *Pearson's Magazine* a two-part series titled "Israel Unbound" (February & March, 1907). He itemized the many prominent Jews who had contributed to the growth of the United States and predicted emancipation of the Jews from the Ghetto, which he described "as a square mile packed with Jewish tenements . . . and it contains more than 300,000 Jews."

Few were as sanguine as Creelman at the time. To most, this utterly alien mass of impoverished Jews, speaking a strange language, could not possibly make the adjustment to modern American society. To a degree this view was reflected by Harris Merton Lyon, talented pre-World War I short-story writer, in his fantasy "The 2000th Christmas," which appeared in *Hampton's Magazine* for January, 1910. It opened with the lines: "It was eleven o'clock of a cold Christmas Eve in the year 1999. In the little old tumble-down carpenter shop of meek old Meyer Abrams, back in a ramshackle courtyard of the Ghetto, sat the strange young Jew, alone."

In the years between 1910 and 1999, nothing has changed, except for the worse. Hundreds of thousands of Jews, half-frozen for lack of fuel, almost starved for lack of food, inhabit the east side of New York in utter hopelessness. The young Jew is an immigrant carpenter from Europe, who comes to a United States where all opportunity has fled and where a few wealthy men con-

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trol the riches of the country. On Christmas Eve, this strange young Jew, Josephson, leaves the Ghetto and travels to the home of the richest man in the nation, who is old and alone. With inspired zeal he convinces the man to set up schools to train the deprived youth of the country in skills that will lift them above their condition and to set up special agencies to see that all men are employed, a task at which the government has failed. When convinced he has succeeded in goading the wealthy man into action, he leaves. The next morning he is found frozen to death in one of the mangers in the estate's stables.

When the main body of science-fiction and fantasy magazines came into existence, a parade of new writers turned to the writing of this type of material, creating a vast field for examination. Yet, until almost 1950, the number of Jewish characters to appear in literally thousands of stories was inconsequential. This was to a large extent due to the cautious policies of the pulp magazines, which were predominantly slanted at a teen-age audience. Very little religion, sex or other subjects that might have proven socially questionable were allowed.

To a degree this may have been influenced by the fact that the publisher of the first all-fantasy magazine *Weird Tales* in 1923, Jacob Clark Hennenberger, was Jewish, as was Hugo Gernsback, publisher of *Amazing Stories*, the first science-fiction magazine, in 1926. It was a tendency of Jews editing large-circulation periodicals in that period to abstain almost entirely from matter in any way involving the Jews (pro or con). Yet, Hugo Gernsback permitted the publication of Jules Verne's *Hector Servadac* as "Off On a Comet," complete in the first two issues of *Amazing Stories*, and also ran "The Diamond Lens" by Fitz-James O'Brien, neither banning or censoring the authors.

While it is extremely difficult to positively identify those publishers, editors and writers of science fiction who are Jews, a substantial number are known. Among the publishers the field has had are Ned Pines, publisher of *Thrilling Wonder Stories, Startling Stories, Captain Future* and *Strange Stories;* Louis Silberkleit, publisher of *Science Fiction, Future Fiction, Science Fiction Quarterly* and *Dynamic Science Fiction*; Bernard Ziff, publisher from 1938 of *Amazing Stories* and *Fantastic Adventures*; Joseph Ferman, publisher of *The Magazine of Fantasy and Science Fiction;* Leo Margulies, publisher of *Fantastic Universe* and *Satellite Science Fiction;* Irwin Stein, publisher of *Infinity Science Fiction* and *Science Fiction Adventures;* as well as several others.

Editors of Jewish background included Horace L. Gold, first editor of *Galaxy Science Fiction;* David Lasser, first editor of *Wonder Stories;* Mort Weisinger, editor of *Thrilling Wonder Stories* and *Startling Stories* and today editor of Superman comics; Norman Lobsenz and Cele Lolli, editors of *Amazing Stories* and *Fantastic;* and Donald

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A. Wollheim, editor of the *Avon Fantasy Reader* and today science-fiction editor of Ace Pocketbooks.

Among the writers with Jewish blood who have been associated with science fiction are Isaac Asimov, Alfred Bester, Henry Kuttner, Robert Bloch, William Tenn, Stanley G. Weinbaum, Harry Harrison, Robert Silverberg, Avram Davidson, Harlan Ellison, Cyril Kornbluth, Judith Merril, Nat Schachner and Arthur Leo Zagat.

With so large a contribution to the field of science fiction from a group which constitutes only 3% of the U.S. population, it would seem in order to ask if science fiction is producing a body of literature derived from Jewish life and experience. Is there anything comparable to what is being produced in the mainstream by Saul Bellow, Bernard Malamud, Philip Roth or even Herman Wouk?

Scarcely a semblance.

One of the very few of merit is "The Golem" by Avram Davidson (*The Magazine of Fantasy and Science Fiction*, March, 1955) which tells, in the old Yiddish idiom, of the encounter of a robot with an old Jewish couple and how their ancestral knowledge of the Golem does it in.

During the twenties and the thirties, the Jew as a part of a science-fiction story appeared more significantly outside of the magazine field then within it.

Olaf Stapledon, whose *Last and First Men* (1930) is one of the foundations of modern science fiction, had a very distinct opinion to express about the Jews in that book. At a period in the future about 4,000 years from now, when an Americanized world civilization has collapsed because of exhaustion of fuel supplies, "the Jews had made themselves invaluable in the financial organizations of the world state, having far outstripped the other races because they alone had preserved a furtive respect for pure intelligence . . . Thus in time the Jews had made something like a 'corner' in intelligence. This precious commodity they used largely for their own purposes; for two thousand years of persecution had long ago rendered them permanently tribalistic . . . In them intelligence had become utterly subservient to tribalism. There was thus some excuse for the universal rate and even physical repulsion with which they were regarded; for they alone had failed to make the one great advance from tribalism to cosmopolitanism."

If Jewish science-fiction writers were not dealing with Jewish problems in the magazines, they were, to some extent, doing so in the book field. A volume that was first considered to be the vanity publishing venture of a crank, *The Last of the Japs and the Jews* by Solomon Cruso, printed under the aegis of Herman W. Lefkowitz, Inc., New York, appears anything but that today. The story is told in flashback from the year 2390 A.D., when a "mighty army of Indian warriors stood ready to expel the invasion of the White enemy."

Prime mover of "history" was

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Chang Kochubey, half Chinese, one quarter Russian and one quarter Jewish. Caucasian-looking in appearance, he is stung by racial prejudice in several forms, including the denial of a Mexican woman he loves. The book is a blatantly obvious but nevertheless powerfully plotted warning against the consequences of racial intolerance. Japan is destroyed in an earthquake, but the portion of Tokyo with the nation's treasury rises above water and is discovered by Kochubey. He also discovers secret plans for a far-ranging submarine and an almost-indestructible aircraft.

With these weapons, he leads China, India and Turkey in a war against the white races, eventually subduing them. He turns the United States back to the Indians who carry on the legend that someday the white men will return to conquer them again.

The author, in broad generalities, makes many predictions that now strike close to home. He foresees the total destruction of the Jews in Europe as he states, "But who will weep over the terrible calamities and disasters, which befell the Jewish nation all over Europe, where they were massacred and slaughtered by the Christian population of every nation, before the arrival of the Indo-China-Turkish armies?

"Who will weep for the additional *six million* murdered Jews making a total of eleven million Jews killed in Europe, Asia, Africa, Australia and New Zealand?"

Robert Nathan in *Road of Ages* (1935) saw the same hell ahead for Jews. His book opens: "The Jews were going into exile. Eastward across Europe the great columns moved slowly and with difficulty toward the deserts of Asia, where these unhappy people, driven from all the countries of the world, and for the last time in retreat, had been offered a haven by the Mongols. At night their fires burned along the Danube, or lighted the dark Bakony forests; while the wood reaches of Tisza echoed with the tramp of feet, the creak of carts, the purring of motors, and conversation in all the languages of the world."

We follow the travelers across the great Asian wastes as they fight off raids by the peasants. Nathan shows that beset upon by the world, far from being a tribal united group, differences of opinion reach the point where actual violence occurs. His tale is an allegorical miniature of the Jewish situation, culminating when the Mongolian hills are in sight.

In modern science fiction, the existence of Israel has made itself felt. Philip Jose Farmer in "The Lovers" (*Startling Stories,* August, 1952) and its sequel "Moth and Rust" (*Startling Stories,* June, 1953) finds the Israel of the future one of the dominant world powers and a new religion ostensibly derived from a Jew named Sigmen and codified in a book called *The Western Talmud* holding sway. John Christopher in *The Year of the Comet* (1955), ends with Israel preparing to take over a disorganized world with flying infantrymen and a heat ray.

What does all this add up to?

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Simply, that for all its justified claims to inspired scientific and technological prophecy, the science-fiction writers, including the very greatest, have struck out when it came to any enlightened handling of the Jew as a people or as an individual. In almost every case, even in those in which the hero was Jewish, the science-fiction writer from Fitz-James O'Brien up to the moderns has mirrored the common prejudices and/or situations of his period.

The early fear seemed to be that it was dangerous to give the Jews equality and fair play, not because he wasn't ready for it, but because he might do too well. It was safer to keep him out of the picture.

If anything, science-fiction writers, where they have used Jewish characters, appear to be more reactionary and intolerant than mainstream writers. A reading of *The Jew in the Literature of England* by Montagu Frank Modder (The Jewish Publication Society of America, 1939) reveals that even in the 19th century there were many kindly, understanding and balanced views of the Jews in the mainstream of that period to offset the works of the merciless bigot. They are less frequent in science fiction; and, for this reason, the rarity of the Jew as a character in the magazine stories may be regarded as a blessing.

Perhaps, as the alien interplanetary explorers in Wilson Tucker's story "The Planet King" (*Galaxy Science Fiction,* October, 1959) find, the last man on earth will be The Wandering Jew, 3,000 years old. Still misunderstood. Still taunted. Still waiting.

END

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Seventy Light-Years From Sol

by STEPHEN TALL

Illustrated by ADKINS

The natives of Cyrene's planet weren't human; they weren't even animate — but they were friends!

I

If the sky hadn't been such a perfect shade of Terran blue, if the warm sunshine hadn't been so perfectly like it is on a May morning in Virginia, maybe we wouldn't have been so all-fired homesick. But they were, and we were.

The sun wasn't Sol. We were seventy light-years from the Lincoln Memorial and the Statue of Liberty. Still, I caught myself wondering if the Orioles would finally make it in the American League this year. They had been trying for a hundred and fifty, and the best they had been able to do was a couple of seconds.

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"Hey, Roscoe! Look alive!"

Pegleg Williams was driving the jeep, and because the terrain looked good, he had wheels on it. Usually he explored with the tracks, but this was cowpasture as far as binoculars could reach. No cows, of course. And, come to think of it, no grass either. There was a nice groundcover, and it was green, but it sure wasn't grass. It looked more like green cellophane than anything else, sheets of it as big as sheets of writing paper overlapping each other in all directions. It was juicy and crisp, like lettuce, and crunched under foot when you walked.

"Would you like to join us?" Pegleg inquired politely, "or would you just like to lie under a tree in the shade and goof off in comfort?"

"I see no trees," I said, "so I'll join you. But I'll be frank with you. I have long since become bored with your company. Even Lindy looks less luscious than usual this morning. I'd trade you both for a hot dog and a seat in even Yankee Stadium."

"It's the Terran feel," Lindy Peterson said soothingly. "It's got us all sobby. Who'd believe that a view with nothing earthly in it could *feel* so much like home?"

Pegleg had got his plastic leg courtesy of a plesiosaurlike critter in a little lagoon on Sirius VI. Lindy Peterson had sampled the bacteria and viruses of twenty worlds. As for me — well, I've been around, myself. There are papers in the Central Galactic Library on Betelgeuse III that describe three different evolutionary systems, and two of them would be completely incomprehensible to the shade of old Charlie Darwin. Author, Roscoe Kissinger. Me.

I climbed into the jeep beside Pegleg, cuddling my camera and binoculars on my thighs. I almost said lap, but when you're just wearing shorts you don't have a lap. Lindy held down the back seat, along with her packsack and extra culture bottles and plates. She was wearing a short brown skirt, so she had a lap; one you'd like to rest your head in and have her stroke your hair forever. As I said, Lindy had explored twenty worlds, and she was the prettiest thing on any of them.

Pegleg kicked the jeep into gear. It was a perfect replica of a 1945 model, but, naturally, with certain improvements. Like the timonium power pill Pegleg has been using since 2107. That's six years now, and he claims he'll get another hundred thousand miles out of it. There's the force field, too, that he can set up for a couple of yards in any direction around the jeep. It'll foil any primitive, raw power. No end handy, like the mastodon stampede we got caught in on the massive, steaming second planet off Aldebaran.

We simply sat in the open jeep while the thirty-ton monsters slammed into our invisible force capsule time after time. Some broke legs and were trampled to bloody mush by the huge feet of the pressing thousands behind them. Some merely tripped on us, as though we were a transparent boulder, and were

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flung ears over appetite, to land with a crash that rattled the beer cans in the jeep's cooler. All we had to do was to take pictures, make notes, and exchange observations for two hours, while half the time the huge hairy bodies over us blotted out the red light of Aldebaran. No worries about self-preservation. We were as safe as in church. Maybe safer.

But one thing about that jeep hadn't been improved a bit. It still rode like a log wagon. We bounced and jounced and clung as Pegleg tore across that cellophane prairie at forty-five miles an hour.

"Five miles due north of the *Stardust,* at least the way us Johnny Rebs reckon north," Pegleg said. "That'll take us beyond the first rise yonder and out of sight of the ship. Then we can lay out our square mile and get down to cases, each in his or her own crude, primitive fashion."

"We'll never make it," Lindy said. Her teeth were rattling, and her curly red hair was twining and untwining itself in the down draft that came over the top of the jeep's windshield. "A hundred light-years in the *Stardust* can't compare with a mile in this thing!"

"You would like, perhaps, to rocket around the planet in scoutboats like the geographers are doing, making photomaps, and incidentally scaring the pants off the animate life, if any?" Pegleg inquired sarcastically. He rode like a cowboy on a fractious bronc.

"I would like to go to my work as unbruised as possible," Lindy groaned. "That isn't unreasonable, especially in a girl."

"Furthermore," I put in, "what makes you think we aren't spooking more wildlife than any scoutship ever hatched from forge and die? It'd take a strong set of nerves for any critter to face up to this galactic menace!"

"All right! All right!" Pegleg brought the jeep to a standstill on the crest of the first little rise of ground. Our talky-talk was just killing time. We had been doing it as a team for more than eighteen earth months, and now we slipped from nonsense to sense so smoothly you couldn't hear the gears mesh. Pegleg waved a hand.

"How's that look for you, Roscoe?"

It looked good. Good, but remarkably empty. From the slight ridge where we sat the terrain dropped away again into a gently molded valley, maybe seven or eight miles across, and swooping away to the limits of vision at either end. A little stream threaded the valley. We could see the water ripple at every meander, but that was the only movement under our eyes. The whole thing looked more like a painting than a landscape.

I looked back toward the *Stardust.* There, at least, I could see a little activity. The ship lay full length like a great glittering sausage, all nine hundred feet of her, and from our vantage point a mile away she seemed like some great creature alive, basking in the warm yellow sunlight. Some of the crew were out and about, doing the variety of

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things that Cap'n Jules Griffin thinks have to be done if a ship is to stay trustworthy in space.

I can't talk to Cap'n Jules. He's an ass, and he bores me stiff. No matter where he goes, he doesn't change worlds. One place is as good as another to him, because his world is his ship. But so far we've always got where we started to go, so I've got no complaints. I can go elsewhere for my social contacts.

II

Out on the open prairie beyond the end of the *Stardust's* nose I could see a little red dot. I didn't need the binoculars to tell me it was Ursula Pott's red umbrella. The rest of us surveyed, collected, photographed and mapped, but Ursula's job was to paint. If you saw that skinny old freak with her easel, red umbrella, and cartload of paraphernalia set up in Central Park, you'd wonder why the cops didn't run her in. She always wore bright colored shorts, and the results didn't fascinate anybody. She always wore a floppy gray sweater, hot planet or cold. Her long and really luxuriant hair she rolled up into a big gray bun on the back of her head. There were never less than half a dozen paint brushes thrust handle-end through it, the brushes sticking out in all directions.

But Ursula belonged. She was as important as any staff member of the explorer ship *Stardust*. Somehow, she saw things we couldn't. And when the final results of a look-see were being pulled together, it was usually Ursula's paintings that put on the finishing touches, that showed us the significant, sometimes the determinative little things we'd missed.

"I see Ursula's painting," I said inanely.

"Of course she's painting, dear," Lindy said. "And Cap'n Jules is spittin' and polishin' and tightening bolts, and the map boys are miles away making maps. They're working. In fact, just about everybody is working but us."

"Well, shame on us!" I said sourly. "Spur up your thousand horses, Pegleg, and let's stake out our square mile. I'd like a piece of the stream down there, and that little knoll, and — blimey, I think I see a newly dug hole down there! Let's take that in. Might even be an animal of some sort. It will be a change from counting the leaves of this miserable lettuce."

"Maybe it'll be a monster," Lindy said gaily. "A nice skinny monster, one foot thick and forty-seven feet long. Jolly!"

"I'll kill it for you," Pegleg promised. "For your sake, I hope it'll have germs all over it."

All this horseplay was a cover-up, of course. This planet was a queer one. We had orbited it for a week, dropping in very slowly, and getting complete 3D records of all features from a thousand miles up. This is routine with us. We get a good picture of what the job is going to be like, and some inklings of the life complexes, culture levels and possible hazards.

The puzzler was, this time there

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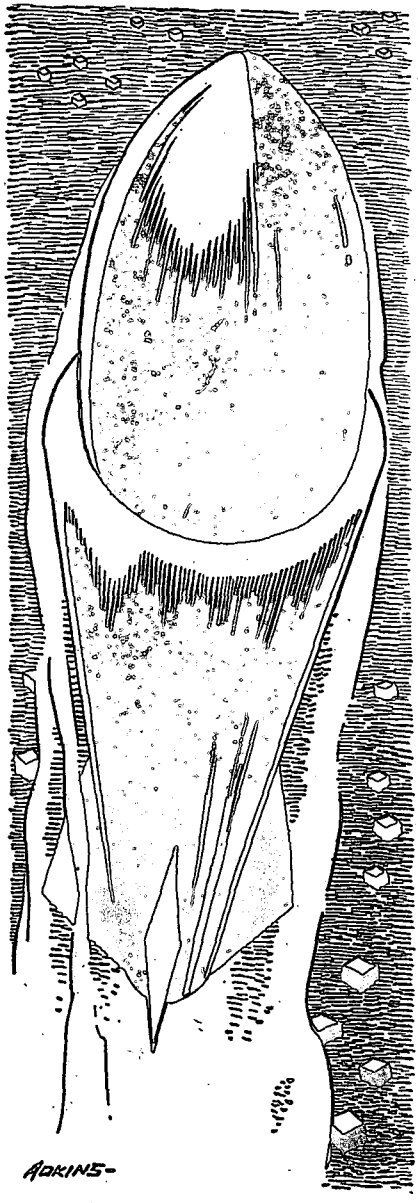
were none of these things. No life but the green ground cover, and apparently no hazards. The planet was in geological recession. There were a couple of mountain range systems that must, at their time of greatest uplift, have been pretty awesome. But now they were eroded to rolling hills and ridges. There was only one ocean, but it covered both poles and occupied maybe two thirds of the planet surface. The land mass had a number of big, slow rivers, much lowland, and plenty what would have been marsh, if there had been plants to fit.

There was a second land mass, but so isolated from the mainland that we called it the Island. In effect, that's what it was, even though it was more than a thousand miles long and averaged three hundred wide. We promised it a good going-over later, after we had spot-checked the mainland well.

This, then was the enigma, the paradox of this new world. Its sun was warm, its air fine and earthlike, a bit leaner on the oxygen than earth and with better than two per cent argon. Don't ask me why. In two days of sampling, Lindy had found no organisms at all in it. No pollens, no spores, no bacteria; nothing detectably alive.

Geologically, Pegleg wasn't having any better luck. The soil was duffy, almost like leafmold in the forests at home. The cellophane lettuce must have been growing, dying, and decaying there for a million years, though how it decayed without organisms was a good question.



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The broken-down rock particles in the soil were obviously of igneous beginnings, deriving from a mica schist of sorts. And probably the thing that disturbed him most was the soil's amazing uniformity. Pegleg loved to make surface maps, but here there was no point to it. There were no surface rocks, no outcrops, and one sample of soil was almost exactly like another. It looked like he would have to get out his drills and start taking deep cores if he was to be anything but a jeep driver.

If the geologist and the microbiologist were stymied, you can imagine how the ecologist felt. The ecologist, that's me. By every physical indication, life should have been abundant. There should have been competition for every foot of land, for every stream habitat, for space in the air above them both. And there wasn't. There just plain wasn't anything alive except the lettuce.

Well, we quit being frustrated and went to work. A snap of the mapping camera recorded the valley and stream. We made a two-foot print, marked our square mile, and Pegleg and I staked it. Lindy set out a string of culture plates, then strolled off down the slope to look at the hole with raw soil around it.

When next I noticed her, she was waving like an old-time Boy Scout practicing with flags, so I dropped what I was doing and hustled down the hill.

"Roscoe," she whispered and held a finger to her lips as I came pounding down. "Quiet, you clumsy thing! You're going love me for this. I think I've got an animal for you in this hole. It really is freshly dug."

"I love you anyhow," I said. "A nice, animate bit of fauna won't do your chances any harm, though. Did you see anything?"

"No-o," she admitted, "but this was done this morning."

I examined the hole and began to get a little excited myself. It looked like a skid track that seemed to get deeper and deeper as it sloped down into the soil, as though a spinning wheel had gouged it out. It was about eight inches wide, but better than two feet in its long dimension. I could have rolled one of the jeep wheels down it, and on out of sight.

At the lip of the skid the soil was rucked up like it is at the mouth of a woodchuck burrow. I picked up a handful. It was moist and crumbly.

"If Providence hasn't played us a dirty trick," I said, "this is the end of the string. All we have to do is pull, and the whole story of life on this planet will ravel right out."

"Neatly put," Lindy said. "Very picturesque. Now, how do you propose to get him out of there?"

"Depends on what 'he' is." I flopped down on my belly and peered down the hole. No eyes shone. It was as black as the inside of a goat down there. I unclipped the magnaflash from my belt and pressed the button.

For a moment I thought I detected movement: I knew I couldn't have, though. The magnaflash illumined the tunnel with a white light brighter than day. And the puzzle deepened.

I've said that the tunnel could have been gouged out by a wheel.

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Well, that's what was down there. A wheel.

I motioned to Lindy.

"You look," I said.

She did.

Then, very simply, she said, "I don't believe it."

In a way, I didn't either, but there it was. I jiggled the flash back and forth, but since the illumination was perfect to begin with, that didn't help any. It was still a fifteen-foot slit tunnel, with what looked like an old-fashioned millstone leaning against the wall at the end of it. I couldn't see the side of the wheel, but I would have bet that there was a square axle-hole in the center. The rolling edge looked roughened, as though it were made of granular gray sandstone.

"Well," I said finally. "Artifact for the anthropologist, a sample of stone for Pegleg. That's something, anyway."

"Don't quibble," Lindy said. "What dug the hole?"

"If I were taking a final exam," I said, "I'd say the wheel did it. Knowing full well that this isn't possible, I'll simply say, ma'am, I ain't got the faintest idea."

We stood, then, and looked at each other. We had done the same thing against a lot of backgrounds. I saw a tall, spectacularly proportioned young woman with red curls, wearing a brown halter embroidered with yellow suns and just barely adequate for the tremendous responsibility it carried, a short brown skirt that only came halfway down her perfect thighs, and leather sandals laced on with wide crossed thongs that tied just above the curve of her calves. She wore a wide plastic belt. Even the variety of pouches and other objects clipped to it didn't disguise the fact that it encircled a waist astonishingly small. In short, Lindy was a dish.

She wasn't having such good viewing, but it didn't seem to bother her. I know I'm wide rather than high. The color of the hair on my head doesn't matter because it's mostly gone, but there's more than enough on my barrel chest and thick arms and legs to make up for that. The stuff is black and matted like fur, and the rumors that I comb it are perfectly true. I have to. When the weather permits, and it has to be rough not to, I usually wear plastic shorts, sandals, and a wide clip belt onto which I hang anything from an atomic blaster and magnaflash to a coil of rope. Over the years I've generally looked worse than anything we've found. But I've been told I have beautiful eyes.

"Let's get a hook and an extension rod and drag out the millstone," I proposed. "Maybe we'll learn something from examining it."

We started up the slope. Pegleg's yell came down to us.

"Find!" he whooped. "Hurry up!"

III

He was sitting on a stone as we trotted up. That seemed all right until I realized that we hadn't seen a stone on the whole blasted planet, unless the wheel was a stone. He was grinning all over his narrow

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face. Then he got up and made a sweeping gesture toward the object, and we could see that it wasn't a stone at all. Not a fieldstone, anyway.

"How we missed this I'll never know," Pegleg said. "It sort of stands out, doesn't it?"

It did. It looked like a building block, a cube of very delicate rose-pink, and large, maybe two feet on a side. It had evidently been very carefully cut. Every surface seemed absolutely true, every corner perfect. There were no scratches, no striations on the carefully polished planes. And no evidence of how it might possibly have gotten there.

"What do you think, Roscoe?"

I looked at the surface with a lens. The stone, if stone it was, was new to me. It had no visible texture.

"Let's turn it over."

We did, but not without some trouble. That thing was heavy. The lettuce underneath it was squashed practically out of existence. But it hadn't been there long. The plant juice was still fresh.

The bottom surface was exactly like all the others. Nothing clung to it. No plant juice stained it.

Pegleg hefted his geological hammer speculatively, then shook his head.

"Be a shame to spoil it by chipping," he said. "I'll wait till I get it into the shop and use a band saw. Think we can lift it into the jeep, Roscoe?"

"Bet you two beers I can do it alone," I said. These arms of mine are not thick for nothing.

Pegleg unsnapped the remote-control switch from his belt, held it up on the palm of his hand. From far up the slope the jeep woke up, turned in a wide circle, and came rolling toward us at a cautious ten miles an hour. It acts like it's got more sense when Pegleg's not in it.

The jeep came alongside. Pegleg shoved stuff around to make room for the specimen. I tilted the block up on an edge so I could get my fingers under it.

"Wait, boys!"

Lindy was pointing.

It was maybe thirty feet away, and it couldn't possibly have been there before. It was another cube.

I let the pink cube settle back into place. We all stood where we were and stared at the new one. It was black, a glittering onyx that picked up the sun's rays and fairly bounced them about. In size there wasn't much to choose between it and the pink.

Pegleg broke the silence.

"And that, boys and girls, teaches us that no world is ever as empty as it seems. Something or somebody, is having fun with us. We are being diddled, but good. How much does that block weigh, Roscoe?"

"Two-fifty, three hundred pounds," I said.

"How far could you throw it?" Pegleg asked.

I ignored him. When encouraged, Pegleg loves soliloquies. He can go on for minutes and minutes, and you wonder where all the words come from. I strode over to the new cube. Lindy followed me.

The pink cube was merely per-

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fect, but this black was a magnificent thing. We walked around it, ran our fingers over its satin surface. I tilted it. It was solid and heavy.

"I know my Mother Goose," Pegleg began again. "Things like this don't fly through the air, even if the cow did jump over the moon. Energy is involved here, partners, lots of it, perfectly controlled. Be funny, wouldn't it, if we turn out to be here at all purely because of the tolerance of the local Mogul?"

"You jump at conclusions," I said shortly. I slipped my geological hammer out of my belt, and before anyone was aware of my intention I hit the cube a terrific clip with it.

That chop would have taken the corner off any granite block ever cut, but all that happened was that the hammer bounced back and almost hit me in the eye. I examined the cube closely. There wasn't a blemish on its perfect surface. Whatever it appeared to be, it wasn't stone.

When I straightened up, it wasn't necessary to say anything. The plot had thickened. Straight down the slope from me I could see three more cubes. Beyond the jeep, a couple more. And only a few feet from the black one, behind Pegleg, a smaller one, delicate in color, had appeared on the lettuce.

Now I've faced things too grim to belong in any respectable person's nightmares. I've felt all kinds of hot breaths on my neck. But I don't remember coming any closer to panic than I did right then, when the cubes began to multiply up and down that lettuce-sheathed slope.

Not that they did anything. They didn't. They just sat there. Not that they were frightening in appearance. They weren't. They were rarely beautiful things. Each was a different color, and some of the shadings were so delicate that I caught myself wondering how Ursula was going to meet the challenge, if she ever got a chance to paint them.

Somehow, we couldn't see how they got there, but minute by minute there were more of them. There didn't seem to be any pattern. They were scattered hit-or-miss all around us over an area several acres big, but there didn't seem to be much doubt that we were the reason for the assembly. We were in the middle.

"If they get much thicker," Pegleg said, "we won't be able to get the jeep out." It was a statement of fact, as though appearing and disappearing stones were a regular part of everyday life. If Pegleg felt any panic, he hid it remarkably well.

Lindy, too, retained her presence of mind. She had unclipped her tiny tape-camera and was hand-operating it, sweeping it slowly over that rainbow-colored, geometrically perfect boulder field. In her lab back in the *Stardust,* what it saw was being noiselessly recorded on film, ready for the evening's report.

I fell in line. I walked from cube to cube, running my fingers over their surfaces, tilting them on edge and even lifting a couple. I could have carried one if I'd had to, but just barely. And that's all the information we could get.

We reassembled by the jeep.

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"Since none of this makes sense," Pegleg said, "it's evident that it makes a lot of sense. These cubes are being assembled here by some intelligent agency. They don't seem to have any potential to damage us, but that's simply because they haven't done any. If one fell from above, instead of appearing on the ground, it could smash us flat."

"You can't see them appear," I pointed out, "yet they're bright, heavy and plenty tangible."

"They make lovely seats," Lindy contributed and demonstrated her point, sinking with a sigh onto the nearest one and wiggling to make herself comfortable. It was the black one that I had clipped with the hammer. The next instant she shrieked and leaped straight up into the air, grasping at her derriere with both hands. Her face flamed with shock and embarrassment.

"It *bit* me!" she said furiously.

When things are funny, you laugh, The unusual and the bizarre become commonplace, and a healthy Earthman keeps his sense of humor regardless of the backdrop it has to operate against. Lindy evidently wasn't hurt, so I laughed. In fact, I fairly yelled. Pegleg didn't seem to find it so amusing, and Lindy's fine face was indignant. But I laughed until the tears came, then collapsed weakly onto the nearest cube.

Then I stopped laughing. Not because something happened to me, though. I realized that I was sitting on a cube and that it hadn't "bit" me. I wiggled cautiously on the cube, patted its sides gently.

"I don't feel a thing," I said.

"I sat on the black one," Lindy said. "Try it."

"That," I remembered, "is the one I hit with the hammer. Wonder if there's any connection?"

"Try it," Lindy repeated. She looked grim.

IV

I'd have done it, too, but there was another interruption. It was real, it was dynamic, and it made no more sense than what had happened before. Something was sweeping up the hill. Below us along the slope the cubes began to vanish, like lights winking out. Then those closer went away, then those around the jeep. The last to go was the black cube, and I'd have sworn it went reluctantly, as if it had unfinished business.

The thing that seemed to cause this swished past. There was no doubt as to what it was. The hole below us no longer held a wheel. It came by so fast we had no time to move, and as it passed the jeep it released a spurt of whitish fluid that spattered a tire. It swept in a wide circle on the slope above, then made another run at us. Lindy and Pegleg jumped for the jeep. I jerked out my rock hammer, and as it went by I took a swipe at it. It leaned away as sweetly as a bicycle going around a curve, spat the white fluid all over my feet, and I hit nothing but empty air. This time, though, it kept going.

It rolled across the valley, through the stream and on out of sight over the next ridge. Against that painted

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landscape it looked exactly like an animated cartoon.

Once again we looked at an empty world. No movement other than the stream ripples below us, no sign of life.

"Well!" Pegleg said. He must have liked the sound of it, for he said it again. "Well!"

"Nicely put," Lindy said drily. "So what do we do now?"

Pegleg sat down on the running-board of the jeep.

"They aren't stones and they aren't germs," he said, "so that lets out you and me, Lindy. Looks like it's up to the ecologist, Roscoe."

I was down on one knee in the lettuce, carefully scraping the white stuff off my sandals and bare toes. It had dried and became chalky, and was easily removed. I put a good sample in a specimen vial.

"This stuff doesn't seem caustic," I observed. "I don't feel any general effects, either." I raised an eyebrow. "You two don't seem to realize that I have been assaulted with, I have no doubt, deadly intent. Hand me some water, Pegleg."

The water washed the material off readily. Lindy hung over me with delayed solicitude, but I was convinced that it wasn't toxic, at least not to me.

"If it had been a rattlesnake bite, I'd be in a coma by now," I grumbled. Then I brightened. "Let's pretend it was a rattlesnake. Pegleg, the bottle!"

The bottle held good bourbon. It had been distilled on a lovely little Grade B planet seventy light-years away, in a gracious land called Kentucky. We each took a good belt of it and felt more cheerful, though the homesickness came back a little.

"They're alive," I said suddenly, apropos of nothing. "They aren't remote-controlled anythings. The cubes feed on we don't know what, and the millstones prey on the cubes. They both may be exceedingly complex. They may even be intelligent."

"Uh-huh," Pegleg said, and I could tell that it sounded reasonable to him. "So where do they go when they're invisible?"

"I have no details, Dr. Williams," I said loftily. "Merely an hypothesis. You are familiar with hypotheses, Dr. Williams?"

Pegleg opened his mouth (one of his best holds), but the jeep radio came alive and beat him to it.

V

"Dr. Williams! Dr. Peterson! Dr. Kissinger!" It was Stony Price, the communications chief, reading one of his formal communiques. "Dr. Rasmussen requests the pleasure of the entire staff's company at dinner. Appetizers at 1800. And be on the nail, chums!" The last, naturally, was not on the sheet. The speaker went dead before we could answer. Stony was on another wavelength, calling the mapping crews, the meteorologists, or maybe Ursula Potts.

"I think," Lindy said, "that I have enough to think about for one day. I would like to go back to the ship and sit in my lab and think. Then I think I will take a nap, for I think

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Johannes Rasmussen's dinner will be dull and will require all my stamina." She misted her brown eyes at Pegleg. "Could you take me back, Dr. Williams?"

"Does the sign over your desk say 'think'?" Pegleg growled. "Let's all go. What we do next calls for some planning."

"Thinking," I amended.

Lindy clambered into the back seat of the jeep and ignored us both.

Research Director and Expedition Chief Rasmussen's dinners weren't so bad, once you got past the formalities. They occurred about every two weeks, on an average. Full staff, and, get this, full dress. At that, maybe it was good for us. We wore field clothes (and in the case of the men it was shorts and sandals and an unkempt look) all the rest of the time. Johnny Rasmussen simply reminded us from time to time that we were a highly civilized, competent and profound group of scientists, and that between us and the varied worlds we explored there was a great gulf fixed. Culture-wise, that is. And to an Englishman, nothing expresses this better, to this day, than dressing for dinner. Rasmussen, despite his name, was as English as the shade of old John Bull himself.

So we dressed and showed up in the big dining salon at 1800, as directed. And Rasmussen, his lean face clean-cut and distinctive, his mustaches waxed to points, greeted us with his usual formula.

"Good evening, ladies and gentlemen!" He stood tall and correct at the head of the long table, and he bowed and smiled slightly as he pronounced each name in turn.

"Captain Griffin. Dr. Ames. Dr. Peterson. Miss Potts. Dr. Kissinger. . . ." He went right around the table, and when he got back to himself, he said: "I am delighted to have you here this evening. Won't you be seated?"

Then everybody sat, Johnny picked up his appetizer spoon, and the formalities were over. Silver and china clinked. The conversation hum gradually built up to a subdued roar.

Ursula Potts sat next to me. She wore a grim-looking purple sheath for a dinner dress, her gray bun of hair was in order for once, and her earrings were garish pendants of red seeds from some place we had visited. She shoveled in the chow like a harvest hand.

"Well, Ursula," I said. "Nothing to paint this stop, eh? No life. No action. No color."

She pointed her long nose at me. "You're kidding, Roscoe. Plenty to paint. Big challenge." She took a bite of melon and chewed.

"Yeah," I said. "The slopes and the sun and the blasted lettuce!"

Ursula's sharp eyes flicked at me. "There's a population," she said. "Plenty of life."

"You've seen some?"

She shook her head and stuffed in more melon. "Haven't seen a thing. Felt it, though. All around us. It'll show up when it's ready."

"That's a cheery note," I said. "A disembodied population! This is where the spirits of men wait out

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the time between death and the next birth."

"Don't blaspheme, Roscoe!" She sank her teeth into a piece of meat and worried it. "Whole setup says life. Landscape shouts it. Got to be."

She looked like a witch and she sounded like one. Maybe she is one. Anyhow, I don't see how she does it. I said so and added: "You're right, you know. Today we found the life."

Her eyes gleamed with interest, but she didn't say anything. Just ate.

"Color," I baited her. "You've never seen anything like the shades of color."

She chewed, then wiped the grease from her thin lips. I let her stew.

"Color on what?"

"On the cubes, naturally," I said.

Her pale, unhuman eyes left mine, swept up and down the table. Then she beat vigorously with her fork on her water tumbler. The table talk died.

"Dr. Kissinger has news," she said wickedly. "Sounds interesting. Playing cat and mouse with me. Maybe he'll talk to the whole staff!"

"Can't it wait?"

"Really, Ursula! Right in the middle of dinner!" That was Lindy.

"Give you more appetite," Ursula said complacently. "Go on, Roscoe."

I looked at Rasmussen.

"It's your party, Johnny. Want me to talk in the middle of it?"

The chief hesitated. "It's not customary, but if Miss Potts thinks—"

"Miss Potts does," Ursula said. "This sounds different. Speak up, Roscoe!"

The old witch had me. If I'd been spoofing her, this would show me up. If I hadn't, I could prove it by making a prereport to the staff, and her curiosity wouldn't have to wait.

So I told them about the cubes and the wheel and the hole in the ground. Pegleg added details. Lindy admitted she had color film.

The excitement we kicked up almost spoiled dessert.

V

Later we adjourned to the lounge, where those of us who liked them had cigars. Rasmussen had a small and guarded supply of Venusian brandy. To our surprise he brought it out. It's wonderful stuff, with a taste quite indescribable, and it only takes a couple of nips to make you sharp, witty and proud of yourself.

We were a receptive and appreciative audience when Lindy showed her color film. There was talk from speculation to argument as to the nature of the cubes. Ursula drooled over the colors. So, after a slow start, investigation of the life on Planet Four of the star Cyrene became an investigation and not a hunt.

Planet Four had a twenty-two hour day, but it was in other ways so like Earth that I always felt a little rushed for time. Automatically I tended to adjust to an Earth tempo. It always seemed to me that I was turning in too late and out too early. Worse than that silly daylight saving they affected on Earth a hundred years or so ago. Still, I managed to get the chores done, so

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nobody inquired about my feelings.

For three days following what we thereafter called the Breakthrough, we saw nary a cube nor a sign of one. I haunted the study area. Pegleg and Lindy made a couple of fifty-mile jaunts over the prairie, and into and out of a dozen stream valleys. They found a couple of wheel holes with nothing in them, but otherwise — nothing.

As a final gesture, I took a mapping flight, a thing I hate to do. The miserable little rocket boats are cramped; they're rough as Pegleg's jeep, and they go so fast you can't see anything. But the automatic panoram cameras pick up everything from horizon to horizon, ten clicks a second, and if you're interested you can blow up the results until one leaf of lettuce shows clear and sharp. We made a low run the length of the Island—and that was pay dirt.

I put the film in an ampliprojector that evening. The first Island frame I looked at made me zoom up the magnification. The place was a cubic boulderfield from end to end.

The cubes, though, were different. Instead of the kaleidoscope of color we had seen before, those were all one shade, a dull, neutral gray. But they were big. If the size of the lettuce leaves on the Island was a reliable guide, some of the larger cubes must have approached four feet on a side. Enormous things. I only speculated as to how much they might weigh.

Another fact was apparent. Whereas the colorful cubes were perfect geometrical figures, none of these was. All were slightly warped, misshapen, distorted. Some actually seemed to have corners off, or to be gouged. One in a thousand wasn't a cube at all, but had seven, eight or even nine sides. It gave to think.

So we thought it over, Lindy and Pegleg and I, while we looked at one Island frame after another, and poured ourselves soothing libations from the bourbon bottle. Finally the bourbon took over completely. We woke the next morning with stiff necks and aching muscles, having slept in the study chairs all night. But our subconsciouses had been busy. We had some ideas, some explanations, some hypotheses.

We expounded them over coffee, followed by bacon and eggs. (Just because your job takes you around the galaxy is no reason to live like a savage. It's well enough to eat what the environment affords for most of the day, but an Earth-type breakfast makes for contented investigators. Wonder if they still make Wheaties? Ugh!)

We talked well into the morning. We reached the point where talking served no more purpose, summarized our ideas, and got ready for the field again.

Lindy dictated the results of our deliberations onto her report tape:

"Hypothesis I. The cubes are living, sentient beings.

"Hypothesis II. There are two distinct species of cubes, the colorful, smaller type being dominant, and occupying most of the planet, the larger, gray, imperfect forms being confined perforce to the Island

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"Hypothesis III. There is only one species of cube, the imperfect members being relegated to the Island as they occur, the Island thus serving as sanitarium and jail.

"Hypothesis IV. The millwheels are living, sentient beings.

"Hypothesis V. For some reason the millwheels are antagonistic to the cubes and may even be able to destroy them. (Question: Is the white fluid expelled by the wheel toxic to cubes?)

"Hypothesis VI. The millwheels are predaceous and feed on the cubes. (Their apparently few numbers indicate a predator position, ecologically.)"

To this list Lindy appended a series of questions:

"Question: If living, what type or types of metabolism do the cubes and wheels have?

"Question: If living, on what do they feed?

"Question: Through what energy mechanics are the solid, heavy cubes able to appear and vanish 'at will'?

"Question: Are these energies likely to be directed against us if we continue to investigate?

"Question: Is there other life, in this same general pattern, as yet undiscovered by us?"

Lindy had just finished the tape when my intercom began to chatter. It spat a slip of paper onto my desk. It was the chem lab report on the white stuff I had scraped off my toes. They had taken their good time analyzing it.

"What gives? You think we need practice? Sodium acetyl saliciliate. Aspirin, pal. Bayer pure. If you've been hitting that bourbon bottle like I think you have, you probably need a local source."

I passed the slip around. Pegleg frowned over it. Lindy giggled.

"I sometimes feel," she said, "that it's about time for me to go back home and start raising petunias and babies. Things are getting out of focus. They don't make sense. Aspirin, yet!"

"I don't know much about petunias," I said, "but don't forget me when you start the other project."

I rummaged around in my desk. "Let's stick a few aspirin tabs in a pouch and take 'em along. If the cubes get tough, they might serve better than an old-fashioned tommy-gun."

A prophetic statement, that.

When something baffles me, I like solitude. Here, where everything was more or less puzzling, my inclination was to become a complete hermit. I was beginning to get excited, too. As I've said before somewhere, I've described and verified three evolutionary systems. Double-domes from Sol to Arcturus, most of whom haven't even been off their own planets, quote me with reverence. (If they ever saw me at work, they'd probably faint.) So I knew I couldn't let myself and my public down if here was a fourth system.

I left the others and went out alone, just walking. I knew by now that I wouldn't see life if it didn't "want" to be seen, and if it did, one place would probably turn out to be as good as another. What I

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needed mainly was to think. I worried briefly about leaving Pegleg and Lindy together so much, but then I figured that hanging around wouldn't help that situation either. Lindy knew how I felt about her. I showed her again every chance that came up. We kidded and pretended, but she knew.

I stopped at the spot where the jeep had stopped, that day of the Breakthrough. In one direction lay our study area, a painted stream valley against a cloudless Earth-June sky. In other, the *Stardust* glittered, and farther away, the red dot of Ursula's umbrella specked the green landscape. No sounds, no wind, no birds in the sky. I sat down on a hillock, rested my chin on my knees, and brooded.

I don't know when I became aware of it. I was alone, and I felt alone, and then suddenly I knew that I wasn't alone any more. The black cube rested solidly, inertly, crushing down the lettuce not six feet from where I sat.

I realized that I was not surprised. If our hypothesis was in any way valid, it had come looking for me. I remembered the chop I'd given it with the hammer and wondered vaguely if it was going to hold a grudge. That it was the same black cube I hadn't the slightest doubt. I didn't move. Quietly I studied the matchless perfection of its glittering onyx planes. As an object d'art it would have graced a pedestal in any museum in the galaxy.

Nothing else happened. I sat, and the cube sat. No more cubes appeared. Apparently this was going to be a solo contact. And I felt, indeed I knew, that there was a reason for its coming.

After a quarter of an hour of this. I did what you and you probably would have done. I began to talk.

VI

Oh, I didn't expect any answer. You've talked to your dog, to a flower, to a picture of someone you like—or hate. It's a way of thinking.

"You're alive, aren't you?" I told the black cube. "You aren't life as I know it, but you're alive. What your origins were, I can't even guess. What you're made of, what goes on inside you, what the sources of your energies are—I'd give an arm to know. Make it a left arm," I added. "I'm right-handed."

The cube simply sat. I didn't expect anything else, but somehow I felt cheated. For the first time, the utter soundlessness of my surroundings began to get me. Everywhere else I had ever been, things made noise. Here, nothing. You made your own noise, or you didn't hear.

I began to talk again. It was rambling, idle talk. It relieved my tensions. And it was some minutes before I became aware of another reason for talking.

I was talking because the cube *wanted* me to talk.

Something inside that beautiful polished surface was probing, sifting, analyzing. This phenomenon of sound was no part of its everyday existence. Varied, meaningful sound it probably had never before known.

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And, somehow, it was reminding me that this was so, was urging me on to more speech.

It wasn't telepathy, in any sense that you have ever used the word. I've come across some highly developed examples of that. This was different. I just knew what it wanted.

"How can you hear me?" I demanded. "You live in a soundless world. How, for that matter, can you vanish and reappear, probably miles away, even though you have unusual weight and mass? What complex stuffs are you made of? How do you come into existence? How do you die?"

I studied the inert, unmoving object. Dimly, but definitely I could feel its awareness of meaning in my speech. There was, too, a sense of pleasure, of satisfaction, of intellectual wonder emanating from it. It was something I recognized and hadn't thought of before. If the cube was a living, sentient being, an active, intellectual entity, why shouldn't it regard me as remarkable, unbelievable and strange? That's the feeling I got, and I admitted the justice and validity of it. After all, it was all in the point of view.

We were communicating!

That hit me like a blow. It was nothing you could put your finger on, but we were, somehow establishing contact. I felt pretty sure it couldn't hear me, yet that it got pleasure from my speech. And minute by minute the feeling of contact grew more definite. I groped for a way to prove it.

I bounded up from my seat on the hummock and strode back and forth, the lettuce squashing crisply under my sandals with every step. I stood over the changeless, motionless cube with both fists clenched. I swore at it.

"Do something!" I shouted. "Damn it, don't just sit there! Move!"

I considered picking up the cube and dropping it. I did take out my rock hammer and cut circles in the air with it. But the cube could have been the block of stone it superficially resembled. Nothing happened. And I got the feeling that there was no reason why anything should.

In the evolutionary chain of events that had produced the cubes, so different from any I knew, motion had no merit. The rigid body plan precluded it. And what went on inside I could only dimly guess. Then I remembered that the wheels moved, and I said so. The message got through. The feeling that I got in return was not a good feeling. But other than that, nothing.

I prowled and stewed. Then the thought came to me that I was behaving like a spoiled child who had dropped his lollypop in the dirt. Whether the awareness came from the cube or my own common sense I'll never know. But I suddenly saw that the human race wasn't coming out so well in the dignity and maturity department. The cube was patient. It simply sat.

My mood changed. My impatience vanished. I stopped before the cube

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and made a little bow, as polite and formal as Johnny Rasmussen.

"I beg your pardon," I said.

Was the pulse of feeling that I got back akin to soundless, derisive, sympathetic, good-humored laughter? I know what I think.

Thereafter for two hours I sat and talked to the unmoving cube, I talked as I would have talked to a man. I used the words that said what I wanted to say, knowing full well that there was no way to simplify or adjust them, suspecting that I wasn't, in any sense, being heard anyway, but being increasingly aware that the thoughts, the ideas, were going through.

I told it about the explorer ship *Stardust* and of the millions of worlds in the galaxy. I explained what manner of creatures we were. I told how we were able to go from world to world, and how we were endlessly curious about all phenomena we could detect or contact. I admitted that this was a world apart from any we had ever explored, that it had little or nothing we expected, that life here seemed to have a different meaning from any we had ever before encountered. I assured it that we had no enmity and that we could use friends and help.

"We have short lives," I told the cube. "We associate in pairs and produce others like ourselves, and they live the same way in their turn. How you live, how you continue yourselves, is all the greater mystery to us, for we know you can't live as we do."

So I talked, on and on, and imperceptibly the rapport between us grew more complete. I knew, too, when to stop. And when the time came, I got up and said good-by.

"I'd ask you to walk along with me," I said drily, "but walking doesn't seem to be your strong point. I'll see you around."

When I was a hundred yards away I looked back, and the cube was gone. But it didn't *feel* gone. Nor was it. It sat quietly on the lettuce ahead of me. I passed it, and once again it appeared ahead. I didn't see it come. It was just there. And I got a good feeling, like a shared joke, down inside me. The cube was walking along with me, after its fashion. But when the long glittering bulk of the *Stardust* reared close ahead, the cube vanished, and I knew it was really gone.

That evening I reported. It was an all-personnel report, full staff, full crew, everybody. Not asssembled, of course. The tape was put on intercom, and every living soul had to listen. This was essential. Then, after conferring with Lindy, Pegleg and me, Johnny Rasmussen announced point of view and policy concerning the known life. This was usual, but on this planet it hadn't before been necessary. There hadn't been any life.

The gist of it was, be friendly. Be courteous, be aloof and, rigidly, be hands off. No tampering. No experimenting. Watch. Report any cubes sighted and, most particularly, any behavior. And, as a special precaution, *no weapons*. There was every evidence they wouldn't be needed, and a pretty good chance

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they wouldn't be effective, anyhow. The energy that could disassemble and reassemble the heavy cubes might, if turned to other use, be devastating. So peace and friendship were not only a policy. They were a carefully considered precaution.

The following morning was a panic. I was slug-abed, and Lindy's voice over the intercom wakened me. Cyrene rays reached through my window port, looking so like Sol rays I couldn't have told the difference.

"Look out, Roscoe," Lindy said. "We didn't hold the only policy meeting."

We didn't, either. Cubes were everywhere. I don't mean they were jammed together as they had been around the jeep. Instead, they dotted the landscape. I could see thirty or so from the window. Their polished sides picked up the sun's rays, no two the same color. It was a gaudy and a rarely beautiful sight.

And as I looked I felt a familiar pulse inside me. I searched, and sure enough, there it sat, almost under the shadow of the ship.

"And good morning to you too, pal," I said. "Had your breakfast yet? Sorry about the late rising, but I do like my naps. I'll be out in a bit."

As I had my own breakfast, savoring the good coffee and wondering in all seriousness what the cube ate, if ate was the word, a conviction grew that we were not only accepted, but for some reason we were needed. We were the answer to something. What? A good question. But the feeling persisted that it was a real need, and that it would be communicated to us in good time.

VII

That day the mapping crews did not leave the area. The zoological and botanical collecting teams, which had been pretty well stymied by the barrenness of the planet, came out and prowled, looking both appreciative and baffled. There was a population to be studied and yet literally nothing for them to do. That had never happened before.

Cap'n Jules Griffin let the ship's crews out in shifts, keeping a minimum complement on board and seeing that the open hatches and ports were closely watched and guarded. Cap'n Jules hadn't the imagination to see that his guards were useless. If a cube chose to go inside, I hadn't a doubt that it could do it. There was no evidence that it couldn't go through any wall or barrier as well as the ports. We had no idea what their condition became when they disassembled.

Everybody was under the same general instruction from Johnny Rasmussen. Mingle. Wander as you choose. Examine the cubes. Talk to them. Try to detect any energy expenditure, any activity at all. Use detection instruments if you like, but *don't apply any energy!*

The only person who could do usual, familiar work was, naturally, Ursula Potts. The old girl painted like the fiend she resembled. The colors drove her wild. And, say what you will, Ursula was one of the galaxy's great painters. I would

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have loved to look over her shoulder to see what she was seeing, but I didn't dare.

Instead, I visited with my friend the black cube. I brought Lindy and Pegleg over and introduced them formally. Lindy was dubious about her status. After all, this was the cube that had "bitten" her. She was shy with it at first. I explained her feeling to the cube as I might to you, pointing out that I had wielded the hammer and that she had been by way of being an innocent bystander.

The cube's aura expressed no contrition. It soon was apparent that she hadn't been bitten because of the blow. She was "different," and the cube had been repelled. Why? If you find out, tell me. I doubt, in the light of what I know now, if the cube itself knew for sure.

I explained further.

"We associate in pairs," I reminded it, "but the members of the pair are not alike. One is like I am, or Dr. Williams. The other is like she is. That's how she's different. Is that clear?"

Apparently it wasn't, for I got no confirming feeling. Instead, it seemed that the rapport between us was completely broken. The cube simply sat in beautiful isolation. After a moment I shrugged at Lindy.

"You're *persona non grata*," I said. "I can't imagine why. It has shut off the voltage. I don't get a thing."

I spoke too hastily. The next instant I was awash with a flood of feeling, warm and sympathetic and infinitely understanding. It lapped and ebbed around me in almost tangible waves. From the startled looks on Lindy's and Pegleg's faces, I could tell that they got it too.

The cube really understood, or thought it did. The isolation time lapse had simply been a time to think it over. Almost in words it gave this assurance. Then came proof. As usual, we couldn't see how it happened. But another cube sat beside the black one on the lettuce. It was appreciably smaller. Its color was a delicate cream-ivory. I had never seen anything so completely perfect.

I heard Lindy catch her breath. Her admiration gushed in typically feminine phrase.

"Oh!" Lindy breathed, "she's exquisite!"

"She?" Pegleg and I said it together.

"Of course!" Lindy went down on her shapely knees before the ivory cube. "Of course it's she! Can't you feel how proud he is? She's why he understands about me. I don't repel him anymore!"

She ran her long, sensitive fingers over the velvet-smooth surfaces of the smaller cube. "You're beautiful," she said gently, "and I'm sure you're very nice." She patted the black cube. "I won't sit on you, because one doesn't sit on one's friends. But I wouldn't be afraid to. You wouldn't bite me again."

The good feeling was there all right. The air all around us felt like cats purring before an open fire. I picked up an apology from the black cube more graceful than any lan-

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guage could have expressed it. The ivory one exuded a shy, dignified pleasure. Lindy gave them as good as they sent, and you've never heard so much brotherhood kicked around since you went to your last revival.

"All right!" growled Pegleg finally. "We all love one another." He was less sensitive to the cubes than Lindy and me and never was able to communicate in any complex situation. "It occurs to me that this he-she business is oversimplification, Roscoe. They're not like any life we know in any other respect. Sex would be a pretty long-chance coincidence, wouldn't it?"

I had to agree, but I qualified it.

"There's an affinity," I said. "What it means I don't know yet, but there's no doubt it's important to them both."

"Lindy'll be no help," Pegleg added with sly malice. "Her romantic leanings and woman's intuition have completely nullified the training that produced Dr. Linda Peterson, microbiologist extraordinary. From now on she'll be wearing rose-colored spectacles an inch thick."

I like to think that that was the remark that put Pegleg out of the running with Lindy. He meant no harm, and there was some truth in it, too, but Pegleg always talked too much. Talked well, I grant you — but too much.

Lindy flushed with indignation. I hastily spoke to the black cube.

"Let's go to the top of the slope and leave the ladies to talk about knitting. I think you've got something to tell me. Come on, Pegleg."

I strode away without looking back. In a minute or two Pegleg caught up with me, and we walked along in silence. I felt nothing, yet I had no doubt that the black cube would join us. And when we reached the top of the rise, suddenly it was there, inert, utterly inscrutable.

I wasted no time.

"Tell me," I said. "How can we help?"

That made no sense to Pegleg, but the cube knew. We sat down on the lettuce and waited.

For a while nothing happened. The familiar pulse of communication I had known before did not come. For some reason I found myself thinking of the Island and the huge, misshapen gray cubes which were its population. I looked at the landscape around me. The black cube's colorful kin dotted it, but there were many yards between the closest of them. I recalled the massed thousands of gray cubes in the mapping photos. The inference was plain. The Island had become overpopulated. The gray cubes were threatening to move to the mainland.

Threatening! That was it. The perfection that our multicolored friends represented was being threatened by hordes of imperfection. I sensed that this was a carefully disciplined race, that regulated the production of more of its kind in a fashion that I couldn't quite grasp. It seemed that the Island cubes ignored this regulation, and that they scorned geometric perfection.

I came out of my musing with a start. Of course, it wasn't musing at all.

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"Are you getting this, Pegleg?"

Pegleg flexed his plastic kneejoint, shifted his seat on the lettuce and looked puzzled.

"What am I supposed to be getting? I was just thinking how different these fellows are from the big gray brutes we saw in the Island pics. Be a mess, wouldn't it, if they moved across the Strait and started shoving things around on the mainland. Wonder what keeps them there? They looked like their space is pretty well used up, and no matter what their metabolism is like, they must eat *something*."

I had to chuckle.

"You're getting it," I said. "You even have the right point of view."

Pegleg stared at the black cube.

"You mean," he said slowly, "that it's feeding us? That this train of thought wasn't my idea?"

"I've felt since yesterday that we've dropped in on a crisis on this planet. Ridiculous, isn't it? A soundless, motionless crisis. Our boys here are not quite sure what to do about it. I think, since we've been identified as intelligent and disciplined, that we represent hope. I think we're being asked for help."

"And how in the ever-loving —" Pegleg paused, glanced at the cube, and then fixed me with a cold eye. "Suppose we *could* do something, though what, at this moment, I wouldn't have an idea. But I do know the basic regulation under which all explorer ships operate, and so do you. *No interference!* We discover, we observe, we record and collate data, we make recommendations, but we *keep hands off*. We don't take sides. We don't sit in judgment. We don't play God!"

For the first time I felt a slight pulse from the cube. There was dismay in it, and I am sure, a plea for further hearing. That, it should have realized, was unnecessary. Nothing could have kept us from finding out everything we could about this, to put it lightly, different situation. But Pegleg's warning was apropos. We could defend ourselves, but we were forbidden to interfere.

I turned back to the cube. I explained that advice, that most plentiful commodity in the galaxy, was our limit. But if it wanted the benefit of our vast and varied experience, it was available for the asking.

"Boy, you're corny," Pegleg said, and I guess I was.

The cube was gratified, though. Apparently it hadn't expected or even wanted anything more. At this point it quit serving as solitary ambassador to us, the Earth visitors. It asked for and got assistance.

VIII

You can get used to anything. I've proved that to myself on a dozen worlds, and over and over again. It almost seemed natural, then, when cubes materialized on all sides of us in a hollow square, with Pegleg and me in the middle.

The new arrivals seemed almost exactly the same size as the black cube. I counted them. There were fifteen, each a different glowing color. Particularly striking was a chalk white one, the center cube in the wall of the square exactly op-

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posite the black cube. The black, of course, was a part of the square, the sixteenth member. And the square itself seemed as geometrically perfect as the individual cubes.

I checked that. I unclipped a tape and measured the distance between cube and cube. Each sat exactly equidistant from its neighbor on either side. Intrigued, I measured the cubes. In size they were identical, to the smallest fraction on my tape. Any two adjacent sides of the square were as true as an engineer could have drawn. And they materialized like that, out of nothing.

I sat down again on the lettuce.

"Pegleg," I said, "council rings are out of fashion. The newest thing is a square so true that the best tape can't find a jiggled dimension. The deliberations of such a council are bound to be orderly."

"And that, I think," said Pegleg slowly, "is what this council is all about. Order versus disorder. Discipline versus license. Planned progress versus chaos. And at the same time, individual freedom versus mass folly."

"One would almost think," I said, "that you were an educated man. Let's see what they have for us."

I faced the black cube again and started to speak. But I didn't have to. Feeling welled up around me in a soundless clamor, a groundswell of energy. My viscera knotted. Sweat popped out all over me. Pegleg's eyes opened wide. An incredulous look slowly spread over his face.

"Wait a minute! Hold it!" My voice was half choked, my nerve ends in spasms. "Don't let's everybody talk at once! We can't take that!"

The wave receded; the groundswell died. I could see Pegleg slump as he sat. On my naked chest and arms the sweat began to dry.

Then we got it again, from one source surely, perfectly modulated to our tolerance, and clearer than any communication we had ever had before. It was concise, it was efficient, and it told us in clean sequence what we needed to know. I wished Lindy could have been there, to "hear" it as we did. I could sense my subconscious groping about for the lead paragraph for my paper on the Fourth Evolutionary System. It was in the bag.

In thirty minutes the story was finished, and we sat limp. The cubes sat in their perfect square, colorful, immobile, inert. No test could have shown them to be alive.

Finally I roused myself.

"Let us think about it," I said wearily. "Let us talk with our coworkers. From what I gather, tomorrow will not be too late. Look for us then, Dr. Peterson, Dr. Williams, and me and the jeep. We'll be headed for the beaches opposite the Strait."

Pegleg said: "It's definite, now, that the gray cubes have a shorter materialization range than you do, and that they can barely clear the Strait? And that they must rest and recharge before moving on."

We got an affirmative pulse. Because of their greater bulk, it seemed that this was so. They would also have to eat. And their diet would be what it apparently had been for

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thousands of years of isolation: a little lettuce, a little sea water, some elements from the air — and each other. There would be one addition — any colored cube that they could surround and absorb.

If this crisis could be met and solved, I promised myself lovely weeks of working out the details of nutrition and metabolism, interaction and reproduction. Because the colored cubes had two great fears: usurping of their space by uncontrolled hordes and contamination of the geometrical perfection of their race.

I stood up and stretched, and suddenly I had an idea.

"The millwheels!" I said.

I got an ugly pulse of energy that made my teeth click.

The millwheels had been no part of the story. We had only seen the one, but they evidently existed in sufficient numbers to get themselves hated. They seemed to be a form of life over which the cubes had no control.

I pursued my idea, preceding it by an insult.

"You are unreasonable," I said deliberately, "about the wheels. You are prejudiced. You are, I think, blocking off a possible solution to your own dilemma. The wheels may be a part of the answer."

I got an angry mental picture of a millwheel rolling swiftly past a cube, releasing its spurt of white poison; of the cube slowly disintegrating into an amorphous, viscous, colorless slime, and of the wheel rolling back and forth in the mess until it had soaked it all up.

"Perfect!" I said.

The energy storm began again, but there was puzzlement in it. Somehow the "minds" of the cubes, which gave every evidence of advanced competence, were unable to clear this elementary hurdle. They could not comprehend the use of the antagonistic species for their own benefit. The absence of life variety probably contributed to this mental blank spot.

"Are there millwheels on the Island?"

I got a sulky negative.

"I thought not. Probably the gray cubes, having been isolated for so long, retain no memory of their existence. They won't know how to contend with them. They won't get out of the wheels' way, as you do. If there are enough wheels, and they could be assembled, they might do the trick."

If I had been addressing a meeting of old ladies and had suggested that we all go out and collect live scorpions and rattlesnakes, the air would probably have felt pretty much as it did here. I would never have expected these cold intellects to be appalled. But they were.

"Can you communicate with the millwheels?"

There was a great pulse of revulsion, but there was also a grudgingly admitted affirmative. I divined that contact was possible.

"Get across the idea of food. Food in abundance on the beaches opposite the Straits. Get them together. You probably know how. Anyway, it's your job. Would there be many?"

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In my mind a picture grew of thousands and thousands of underground burrows, the entrances neatly plugged with soil, and soon healed over and rendered invisible by the swiftly growing lettuce. Of course it was that simple. I should have figured it out long ago.

"One thing more!" Pegleg's narrow face was interested and intent, and I'd have sworn he had forgotten all about the no-interference rule. At any rate, he was taking sides as much as I was. "What can you do in your own defense? You must have been able to handle them once, since your ancestors confined them to the Island in the first place."

The answer was not clear. It was evident that the cubes themselves didn't know. But they seemed to feel that theirs was a far more refined energy output and control, that weight unit for weight until they could beat down the grays into permanent disintegration. The size factor made it tricky.

"Then don't go down on the beaches at all," Pegleg advised. "Keep to the dunes and the slopes back of them. Let the wheels sweep the beaches. And when the grays materialize on the slopes, attack them with organized groups of fours, one from each of the four sides. They'll probably be scattered enough to make that possible, and four of you can take one of them, can't you?"

The wave of comprehending wonderment that washed over us was something I can't describe. It was like the delighted look on a child's face when he first is shown how two and two make four.

Maybe we shouldn't have done it. Perhaps it was wrong. For there is no doubt that with our simple battle plan we interfered with the logical progress and ultimate end of the life of a planet, a decimating process that already had reduced the myriad ancestral species to four life forms. Had we not involved the wheels, it is likely that the gray imperfects would have overrun the mainland and swallowed up or contaminated completely the rainbow race. With their lack of awareness of the deadliness of the wheels, they may in their turn have been harried out of existence. Then the wheels would have become extinct. For they couldn't exist on lettuce alone.

But that's second-guessing. That's looking back. Technically, or at least physically, we didn't interfere. Advice was our limit. And when we had given it, and the satisfaction and relief had welled up around us, suddenly we were alone on the crest of the little slope. A feeling of thanks lingered in the air. On all sides of us, in a series of sixteen neat squares, the lettuce was crushed out of existence. That was all. And when we looked down the slope toward the ship, and across the rolling prairie in all directions, not a cube was in sight.

IX

We strolled back to the ship. Our good co-workers were clustered about in small groups, chattering like kindergartners. Seeing was believing, and not seeing, they had learned, also had to be believed.

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"What spooked them, Roscoe?" Pinky Ames was our psychologist, and naturally he usually knew less about what was going on than anybody.

"Gather 'round," I said, "and Pegleg and I will make speeches. We're all in the middle of something big. We've got some deciding to do. With the energies that these things can command, we may even be in danger."

Johnny Rasmussen came up and took over, and we had a full staff meeting out there on the prairie. We didn't form a square; just sat in a big, irregular group on the lettuce. Pegleg and I told our story. We predicted what we thought was going to happen and that it would happen soon. From what the council of cubes had communicated, tomorrow perhaps.

"And maybe sooner," said Ursula Potts. She was sitting on her camp stool at the edge of the group. Her strange sixth sense must have picked up the thing the minute it appeared. She pointed. We all gaped.

It had materialized so close that it had practically joined the meeting. Massive, craggy, with deep striations in its dull gray surfaces, it sat as inertly as its colorful relatives. But there was a different feel about it. It exuded a toughness, a wary malevolence, like a battle-scarred old tomcat in an alley. Its huge size and fact that one corner was completely missing intensified the resemblance.

For a moment nobody said anything. Then Dr. Rasmussen asked a question. "How far are we from the beaches near the Island?"

"Fifty miles or so."

"Then the invasion must be on," the chief decided. "What do you suggest, Dr. Kissinger?"

"I think," I said slowly, "that I disagree about the invasion. The colored cubes would have known. This fellow must be a loner, or a scout." I studied it thoughtfully. "I never thought I'd ever see a mean-looking stone."

It couldn't hear me, but something in my attitude must have reached its consciousness. It was in an alien environment; its objectives were conquest and destruction, it expected no friends. That we were things completely foreign to its experience made no difference. Whether it had any curiosity about us we never knew.

The energy didn't come as a sudden blast. If it had it might well have been the end of all of us. But as I stared at the misshapen cube, the intention forming in my mind to go over and examine it, I began to sweat. My jaws seemed to stiffen. My joints ached. The muscles of my arm and legs jerked in spasms, and my vision blurred.

I heard her sigh and sensed rather than saw Ursula Potts as she crumpled on her camp stool and slid senseless onto the lettuce. Around me men were trying to rise, making futile, uncoordinated movements. And the silent energy that was tearing our nervous systems to pieces grew stronger, changed nature, as though the cube were questing the proper application to destroy us.

I could barely hear Lindy's choked cry:

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"Roscoe, *do* something quick!"

I'm a tough boy, and I think I proved it then. I don't know why I thought of it. I couldn't stand on my legs, but I forced my fingers to tear open a belt pouch and scoop out the handful of aspirin tabs I'd put there days before. With the last bit of energy and coordination I possessed I flung them in a shower at the cube.

In a split second it was over. Our bodies sagged with the sudden relief; we had control again. I couldn't have dented the cube with a sledgehammer, but the aspirin tabs went through it like hot coals through ice. The energy was cut as though a switch had been thrown. Before our eyes the cube slumped and collapsed into a spreading, creeping excrescense of colorless slime. The complex molecular interactions that had held it together were jolted askew. It was undeniably "dead."

We devoted some minutes to the blessed privilege of taking deep breaths. Before anyone thought to help her, Ursula Potts sat up suddenly on the lettuce, and intelligence and cold curiosity came back to her pale eyes.

"Close shave, eh?" Ursula said.

It was the understatement of all time, and it broke the spell. Everyone began to babble, but Johnny Rasmussen took swift charge.

"Everybody back to the ship," he ordered. "What in the name of all space did you do, Roscoe?"

"Aspirin," I said briefly. "Issue everybody a pouchful, Johnny. It's deadly to them." I turned to one of the zoological collectors. "Scoop us up a bottleful of our erstwhile friend here, Eric. We ought to learn something from analyzing it."

From the undisciplined way men and women shoved and tumbled through the ports and locks into the *Stardust,* no one would have known them for a veteran exploration crew. They behaved like a rabble. That's what the unknown will do to the best of us. The peaceful, empty landscape, where we had deplored the lack of life, was as peaceful and empty as ever. But into it alien shapes could come out of nothing, with energies the extent of which we could only vaguely guess. And suddenly it was a landscape of foreboding and menace.

But still I lingered outside. Pegleg, always a cold fish when the chips were down, stayed with me. And because we always worked together, I wasn't surprised that Lindy was standing quietly by. She finally broke the silence.

"No danger now, I think," she said. "We know them best, and we could feel it. But we'd better go in and help make decisions. Dr. Rasmussen has given an order. We won't help by ignoring it."

She was right, and we strolled slowly toward the port nearest our quarters. We had to show everybody that there was no profit in panic. I hoped that they were ashamed of themselves.

The decisions to be made called for talk. Rasmussen proposed to raise ship and watch developments from a safe ten miles up.

"At least," he amended, "we will

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assume it's safe. There are millions of the gray cubes, and you saw what one can do. The colored ones are, by their own report, more powerful weight unit for weight unit. The wild energy from strife might well be completely unbelievable."

"I don't agree," Pegleg said. "I doubt that there will be any wild energy at all. It'll be focused, directed. There'll be purpose in every unit of it. And when a cube is destroyed, it doesn't explode energy. It collapses. What do you think, Rosoe?"

I had made up my mind. In fact, I had never had but one point of view.

"I think you're right. And I want to be there, on the ground, in the middle of it. What about the jeep, Pegleg? Would the forcefield be effective?"

Pegleg shook his head slowly.

"I've got no basis for an opinion," he said. "These energies are new. But you wouldn't want to take my jeep and leave me sitting in the grandstand, now would you?"

Lindy grasped my arm.

"Me, too!" she said emphatically. "We won't even need the forcefield. We'll have a bodyguard rows deep on all sides of us. We've helped, remember? We've got friends. And the rays don't know who or what we are, anyway. They don't know we exist." She turned to Rasmussen. "Please, Johnny!"

Rasmussen's mustaches quivered. I didn't blame him for hesitating. And before he could speak, another voice cut in.

"Jeep's got a wide back seat, ain't it? Room for two. I could strap canvases on the side. Can't miss a chance like this, Johnny. Can't possibly."

That tipped it. Twenty minutes before, Ursula had been lying senseless on the lettuce. Now her pale eyes were gleaming with anticipation of going into millions of times the amount of energy that had laid her low. Rasmussen's grin was wry.

"It figures," he said. "You'll make me famous in spite of myself. What do you propose?"

What we proposed just grew like Topsy, but it couldn't help but be simple. There was no way of complicating it. In brief, Cap'n Jules would up ship and for the rest of the day we would cruise the area of invasion, the end of the Island next to the Straits, the fifty-mile stretch of the Straits themselves, and the beaches and slopes of the mainland opposite. From what we could see, we'd try to guess what was going to happen.

I held to the idea that we'd got from the cubic council. They expected the invasion tomorrow. I went along with that. Of course, there was no evidence that the cubes would need light, that they were any less active in the night than in the day. But I rather thought that they were diurnal. Color is a light phenomenon. And even the gray cubes may once have been many shades. The activity of any planet's population is geared to its sun. We had never found an exception to *that*, anyhow.

In the morning, well before dawn, the *Stardust* would land the jeep ten miles or so behind the beaches.

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We'd be on our own, but we'd be watched, of course. We wouldn't use radio, radar, or any energy that might affect or be picked up by the cubes. We wouldn't interfere. Probably we couldn't.

But one thing I intended to be sure of. The way I was going to load that jeep, we'd be able to cure half the headaches in the galaxy.

X

The *Stardust* lifted, floating as quietly and as gently as a soap bubble on a breeze. The ugly rocket blasts, the corrosive outpouring of wasted energies, the swift building of savage pressures, these were all a part of our history now. Cap'n Jules, admittedly a genius with the infinitely complex engines that were his wife and children and hobbies and friends, could render our nine-hundred-foot laboratory-home so light in weight that a man could scull it through the air above this planet with a single oar. Yet in space, by means of Ultraspan, we could move light-years in minutes.

From the air above the Straits, the whole concept of invasion seemed like somebody's pipe dream. Along the end of the Island the gray cubes could be seen in massed thousands, but every picture we had of the area showed them so. Nothing was appreciably different. On the mainland the empty landscape stretched away. The waves rolled in to the beaches, flattened and receded, leaving long glistening stretches of finely-ground, siltlike wet sand. With gulls and sandpipers and coarse beach grass bristling along the dunes, it could have been any isolated stretch along the Atlantic coast of the U.S.A., North America, Sol III. But there were none of these. Beyond the dunes swept the endless undulations of the lettuce-green slopes. This was the space, the all-important space the gray cubes coveted, the space they planned to make their own. And it seemed to be theirs for the taking. Not a rainbow cube showed in all that vast expanse. Not a wheel rolled across it.

We lifted higher and higher, until the horizon in any direction dropped away in a long curve. The planet became a sphere. The yellow light of the sun Cyrene washed the blue stretches of ocean and the infinite green land. On the side of the ship away from the planet, space became deep violet.

We watched twilight creep across the Straits and over the long slopes. Then night washed out details, leaving the landscape outlines watermarked against the blackness of the planet. And that was all.

We loaded the jeep, made our simple plans and got some rest. We were having breakfast when dawn touched the farthest reaches of the Island. It moved in a slow, unhurried line of gray light, and the *Stardust* dropped in to the slope we had decided on. We rolled down the ramp, the big ship lifted, and we were on our own, bouncing across a still dark battlefield with all the armies missing. It was a weird feeling.

I was right about the light. At dawn we were parked at the top of the last long ridge that looked down

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on the sand dunes and the Straits. The beach was empty. Across the miles of glassy water the toe of the Island showed as a faint smudge. And there was nothing, absolutely nothing, in all that emptiness.

We sat. Nothing happened. Pegleg tinkered with his controls, dials glowed, and a faint hum told us that the forcefield was operating. He winked at me.

"We may not need it, and it may not be enough if we do. But it'll give 'em a tussle."

"Fiddlesticks!" Ursula Potts said. "Turn that thing off and let me out of here. I want to set up."

"Do you think you ought to, Ursula?" Lindy asked anxiously. "They don't give warning, you know."

"It's what I came for, isn't it? Hop up, Roscoe, and unstrap that easel."

No doubt about it, Ursula was good for us that morning. I set up the easel, Pegleg unstrapped canvases. Lindy handed out paints, then climbed out herself to stretch her very nice legs. Ursula unfolded her camp stool and sat on it.

"More service than I usually get," she said. "About a hundred per cent more, I'd say." She grinned at us, and suddenly I liked the old girl. It occurred to me that when we went out again we could take her along. She really had it.

"The umbrella, Ursula," Pegleg said. "We've forgotten the umbrella. That ought to attract 'em if anything will." He unstrapped it and set it up. Ursula looked amused. The light was stronger now, and the umbrella's bright color did take some of the curse off that never-ending green.

Then we sat some more. Ursula began to paint, roughing in the landscape. Cyrene rose higher. Lindy and I climbed out again and prowled about. Pegleg fiddled with the jeep. The yellow rays of the sun warmed. Nothing happened. High in the eastern sky a tiny silver speck glittered, as the *Stardust* hovered, watching.

"You know," I said, "this could be a flop after all. After thousands of years, why should they invade today? And where are the Rainbows?"

Lindy looked at me queerly. "One came," she said quietly.

I had an apple, a good Earth apple in my lunch pouch, and I remember taking it out and polishing it in my hands. I took a juicy bite — and Ursula Potts said "Now!" I never knew what became of that apple. Maybe we trampled it, and the seeds germinated, and apples are growing now among the lettuce.

The gray cubes lay in a ragged line just above the reach of the waves rolling up the glistening sand. And there was no end to the line. As we watched, it thickened, doubled and tripled. A cube field came spreading up the slope. The things were appearing in countless thousands. We were a quarter of a mile away, and they rippled toward us like a gray excrescence, blotting out the green of the lettuce as they filled the space.

I picked up Lindy as though she were a rag doll and deposited her gently in the jeep's back seat. Peg-

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leg slid under the wheel. Ursula sat painting with swift crisp strokes, and even in the face of the approaching gray wave I didn't dare disturb her.

"Get ready, Roscoe!" Pegleg said. "If they overrun us, I'll have to set up the forcefield."

"Won't be necessary yet," Ursula said, calmly dabbing away. "Our best bet is to sit tight and not think any hostile thoughts. Then maybe they won't pick us up."

The whole thing was like an old movie with the sound track gone. With uncanny clearness I could hear the soft swish of Ursula's brush, the soft whir of Lindy's tape camera, the muted creak of the jeep as Pegleg shifted position. The waves rolled up the beaches with the same hushed swish and drag, and the spreading, thickening sea of cubes made no sound at all.

The sun's rays beat down warmly. I was cold to my toes, just the same. Goosebumps chased themselves in rows up and down my arms and over my naked chest. I fingered my pouch of aspirin tabs. If my coworkers were as calm as they looked, I admired them for it. If not, I admired their acting.

We had wanted to be close enough to see what went on. Well, we were close enough. Yea, and too close. As always, we couldn't see them appear, but suddenly they were all around us, gray, scarred, misshapen caricatures of the colorful cubes of the mainland. They covered the ridge. As far as we could see along its length, green had given way to shabby uneven gray.

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Somehow, they seemed to respect occupied space, for none crowded us. The feel, too, was not bad. As Lindy had said, they seemed unaware that we existed. Focused as they were on anothed kind of danger, we were ignored. Or so it seemed.

Beyond our ridge the cubes spread no farther. The invasion force seemed to have stabilized itself. It simply sat, and in all the universe there was no movement save the roll of the waves up the beach and Ursula Potts's smooth movements as she painted. It stayed that way for minutes. The effect was hypnotic.

Then our eye trouble began. It seemed to me that little flicks of movement could be detected wherever the cubes lay thickest, yet no cube moved. I was aware that Pegleg was shaking his head. Lindy drew a hand across her eyes. Urula's swift brush strokes stopped, and she peered sharply around her.

"What's happening, Roscoe?"

I hadn't an idea, but I was remembering.

When the gray cubes expended the energy to bring them across the Straits, it would exhaust them. That we had got from the Council. They would have to renew themselves — and *feed!*

"Watch a spot," I directed. "Hold up two fingers and frame an area. Watch carefully. What do you see?"

It was like watching a shutter click, but the cubes were shifting position after all. And they were growing fewer! I picked the smallest cube I could locate and watched it steadily. For a minute or two it stayed there. Then suddenly it was different. It grew. It changed shape. It looked like a different cube. Yet I couldn't believe that it had actually grown. Too obvious.

It took some fast brainwork, but the conclusion made sense. The little cube hadn't grown. Another had formed around it, disassociated it, and absorbed it.

In effect, it had been eaten. In half an hour the invasion force had reduced itself by half. And the cubes that remained were big — big and ominous-looking.

The feel around us began to change.

XI

"Ursula," I said quietly, "we'd better get back in the jeep now. Another phase has started. It's dangerous, and it's real. This is *it*."

She dropped her brushes and palette without a word. I knew then that she realized the danger before I did. But we settled in the jeep without trouble, and Pegleg flipped his switches. Dials glowed as the forcefield came into being.

I held my breath until my face must have been turning blue, then exhaled in a long whoosh. There were other sighs from the back seat.

"Easy," Pegleg said drily. "The forcefield can only take so much."

"Where are they?" Lindy asked softly. "The colored cubes. Our friends. Where are they?"

"With these things 'friend' fits in the same category with 'he' and 'she'," Pegleg said. "They don't exist."

"I don't believe it," Lindy said.

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"Do you think they've been destroyed? They meant to fight —"

She broke off. We all grew tense. In one way at least the forcefield had been a bad idea. It had attracted attention. It was energy, controlled and powerful. The big cubes were massing on all sides of us, and we could detect tentative, probing pulses as they explored.

"Look like tombstones, don't they?" Ursula didn't mean to be funny. She was speaking a simple truth.

The forcefield seemed to baffle them, but I knew it couldn't last. They'd work it out. Sooner or later they'd get through.

"Well, we asked for it," I said. "Get ready, Pegleg. When the pulses come through, cut the forcefield. We'll cure a few headaches, anyway."

I had packed aspirin tablets by the pound. We all had handfuls. We sat and stared at the faceless, motionless enemy. The forcefield hummed. And then we began to hear sound. I mean real sound, a low continuous rumble that seemed to come from everywhere and nowhere, and with nothing to cause it. In a world that made few noises, this was enough to make you pinch yourself.

"Look around, Roscoe," Pegleg said. "Radio silence means nothing now, so I'm going to see what the *Stardust* sees. We're blown anyhow." He flipped another switch, while I swept the slopes with binoculars. The rumbling grew until it sounded like a subway train. I imagined I could feel the ground under the jeep vibrating.

"Dr. Williams!" Johnny Rasmussen's voice burst out of our speaker. "Are you all right?"

"Healthy up to now," Pegleg said nonchalantly. "They've got us pinned down, though, and I think they'll solve the forcefield. They're trying. But it's the noise that's bugging us, Johnny. Can you see what's making it?"

"Fantastic!" Rasmussen seemed to be talking to himself.

"Speak up, man!" Pegleg urged. "We're going to be right busy here in a few minutes. What do you see?"

"The wheels!" Rasmussen said. "The millwheels you told of! They're rolling toward the coast from as far as we can see. Fairly streaking, too. There must be millions of them. They're causing the noise."

Pegleg looked at me with a broad grin, and I joined my right thumb and forefinger in a triumphant A-OK.

"The United States cavalry!" I chortled. "This script is right on the beam!" I thumbed my nose at the crowding boulderfield. "Have fun, you fugitives from a quarry! You won't be sitting there long with that blank look on your no-faces. Hear that rumble? The Iceman Cometh!"

In exploring a dozen planets, in jam-ups with a thousand life-forms, I should have learned that taunting and jeering only spur the enemy to greater effort. The cubes couldn't hear me, I knew, but they got the message. The steady hum of the forcefield began to flicker and stutter. Throbbing energy probes made my body jerk. Lindy's breath came in soft little gasps.

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"Better get ready to shut off the field, Dr. Williams." Ursula Potts spoke quietly. Her usual staccato speech was completely gone. "I seem to be unusually sensitive to them, and if this gets any worse I won't be able to help. We'll throw out a shower of tablets, then set up the field again. If we get the first row around us, it might make them pause."

"I'll count down from ten," Pegleg said. He punched a button. The jeep top lowered and folded. We would have an unobstructed shot in all directions. We clutched our handfuls of tablets. Pegleg began to count.

I fixed my eye on a huge, broken, almost pyramidlike specimen that lay as close to the forcefield edge as it could get. I decided that it was the source of the jolting throbs that were breaching the forcefield and affecting me personally. I began to hate it. My anger grew. I hardly realized that my mind was straying away from rationality. I just hated that cube. I panted for a chance at revenge.

"Seven — six — five —" Pegleg's voice was slow and measured.

I got ready. My eye never left the cube, and so I saw exactly what happened. Oh at least I saw as much as could be visible to the human eye.

"Four!" said Pegleg. The gray, scabrous surface of the cube faded to a clear transparency, and within it fluids writhed and roiled in murky currents and whirlpools. For the space of a hung breath I got a pulse of agony from it. Then it dissipated slowly, like a mist in sunshine.

"Three — two —"

"Wait!" Lindy screamed it.

I had watched the single cube, but all around us and for several rows back the same thing had happened. The reasons flashed and glittered in the sun. The Rainbow cubes, in classic patterns of fours, sat as inert as ever in the cleared space around the jeep. But of the gray cubes there were no messy remains, no signs whatever. Permanent disintegration! That was what had happened to them.

The forcefield hum was steady once more. Nothing probed it. I breathed gently and easily again, but when I unclenched my right fist, the powdered aspirin dribbled through my fingers. I must have been closer to complete loss of control than even I knew.

Out beyond the forcefield the noiseless, motionless battle raged. It wasn't all one-sided, either. The grays learned quickly. They ranged themselves in solid blocks of fours, and when the colored cubes came out of nothing, they materialized into savage energy fields. We couldn't see this. We just knew, somehow, that it was so. And some of our bright friends didn't quite make it. They showed briefly, like brightly tinted ghosts, then vanished again. But this was a battlefield that would show no dead.

We had been too busy to notice, but the rumble of the racing hordes of wheels had become closer thunder. The ground under the jeep seemed to shudder. I saw the first wheel roll through a notch in the ridge beyond the dunes. Then they

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poured over, wave after wave, an incredible sea of motion. And the boulderfield was all gray again. How and where the bright cubes took themselves we never knew.

But once again the forcefield served us well, for the wheels gave way to nothing. The long lines washed into the sea of gray boulders, rolling at high speed, releasing their spurts of white fluid ahead of them. They smashed through the gray cubes as though they were gelatin.

Our forcefield was another story. The wheels slammed into it and bounded high in the air, spinning over our heads like clay targets on a skeet range, but always landing on their running edges and being pressed on by the waves behind them. They couldn't hurt us, and apparently they were never damaged by the crash. But I wouldn't have recommended our spot for a man with an ulcer. It would have done it no good.

Lindy's tape camera was purring gently. Pegleg, too, was clicking away with his old wide-angle mapping camera. With a small drawing board on her lap, Ursula made swift, magic sketches. I can lift more, fight more, take more punishment, but I felt ashamed of myself right then. Ice-water customers, these friends of mine.

XII

It seemed long, but the telling has taken longer than the happening. Johnny Rasmussen's estimate of millions of wheels was slight exaggeration, but there were a good many thousand of them. And they did the trick. This was something the gray cubes could not combat. The one thing they might have done, retreat, seemed not to occur to them. So they "died."

Now indeed were there dead on the battlefield. The dunes and beaches were glistening with viscous, colorless slime. It spread and flowed to the very edges of the water, but seemed not to mix with it. And the wheels rolled back and forth through it, soaking it up, feasting, gorging.

"This," Lindy said huskily, "is the end of the end. I can go back to babies and petunias and know I'm not missing anything." She was pale, and her blue eyes were bright, but she looked a little ill. I patted her hand.

"Look at 'em," Pegleg said. "They're slowing up."

And they were. During the battle the wheels had moved in flashing sweeps and darts, but now they were rolling leisurely, even sluggishly, making slow turns and circles, but still soaking up the slime as they rolled. Not a gray cube remained of all the invading horde.

"They don't look any different," I said thoughtfully, "but I think something's happening that never could happen before to them. I think they're all stuffed."

You can't imagine what our view was like. That weaving, twisting mass of gray millstones, endlessly moving, where before all the world had been still. The movies from the *Stardust*, taken from a few miles up, looked like nothing so much as a yeasty mass of swamp muck, working with worms.

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Slower and slower rolled the wheels. They began to weave, to wobble as though mounted on a shaky axle. Some seemed scarcely able to move at all, sometimes pausing for the space of several breaths, rocking gently back and forth as though stuck in a mudhole. And most unexpected of all, they began to stagger into each other. We had never seen wheel touch wheel before. Under normal conditions I'm sure they never did. It didn't seem to make any difference, though. They simply richocheted sluggishly and wobbled off in a new direction.

Soon they were all doing it. The jeep sat in the middle of a ridged and valleyed pinball table miles long, with thousands of pinballs rolling at once. It was like some incredible *danse macabre,* and we grew dizzy watching it.

"Drunk," Ursula said. "Gorged and drunk." Her fingers never stopped their endless sketching. The sketch sheets were piled beside her. And Lindy's tape camera saw it all, and the *Stardust* movies filled out the record.

Then the wheels turned inland. They had finished feeding. How much each had taken in, how long it would last them, was not a calculable thing. The slime, though, was gone. They had licked their plates clean.

They reeled and veered and staggered, again in long lines, back through the gaps and over the ridges into the rolling plains of the interior. From the *Stardust* movies later we saw what they did then. Instead of going to ground and resting, or digesting, or whatever disposal they made of their food, they kept rolling. They fanned out, spreading farther and farther apart. They couldn't roll fast, but they never stopped. On a land mass as large as greater Asia, North and South America combined, there was room to spread.

And spread they did. There seems no doubt that some of them traveled as far as space allowed them. Two weeks later, wherever we cruised over the land mass, we still saw them rolling, only one in sight at a time, apparently getting as far apart as was possible, dividing up the continent into a checkerboard of vast territories. And the weirdest thing of all was that we never saw a wheel in all that expanse that didn't behave as though it had been a part of the fighting force. Yet their only locomotion seemed to be their ability to roll.

It seems probable that the food they took in may have lasted for years. It may have stimulated some strange reproductive process of which I still have no knowledge. It may thus have made existence more hazardous for the Rainbow cubes. But this is hypothesis. I don't know.

The last wheel had not rolled out of sight before Pegleg cut the force-field, and we climbed stiffly out of the jeep. The ground felt good under our feet. It was different ground, too. The green of the ridges didn't exist any more. Where the battle had raged, the lettuce was gone. There was no juice, no smell, nothing; just the dust-fine, gray-brown

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soil, packed as though steam-rollered.

I stood by Lindy. We were holding hands, her fingers braided with mine, while we stared at the changed, but again empty landscape. Lindy scuffed her sandal on the packed soil.

"Armageddon," she whispered. "It won't happen again for a thousand years."

"It'll never happen again," I said.

Ursula gouged the soil and came up with a smashed strip of metal.

"Made a mess of my easel," she said wryly.

"Build you another one right away," Pegleg offered. "Glad I saved the umbrella, though. What would we do without that little bit of color?"

Lindy pointed a slender finger.

"There's color," she said.

They were back. Or at least, many of them were. They sat in a wide-spaced line along the next ridge inland, the line extending on and on, perhaps the length of the battlefield, the closest of them fifty yards or more from where we stood. They simply sat there, as usual, and none came closer. Nor did we feel the pulse of communication, the good feeling of rapport which we had come to know so well. They might have been the gaudy building blocks they seemed to be. I swept the line with my binoculars. The black cube was not in sight.

Then I noticed that they sat where the green began again, where the lettuce was still growing. It was the packed and naked battlefield that they avoided. Perhaps, as I think of it now, that was what I was meant to notice. Instead of explaining, they made me figure it out.

The battle had been fought in the usual bright sunshine of Planet Four, but now shadows swept over the beaches and dunes, a chill came off the water. Cyrene vanished behind low, heavy rainclouds, the first we had ever seen here. Within minutes a rainstorm broke, violent, dashing, but without wind, lightning or thunder. We scurried for the jeep again. The forcefield turned weather as easily as other forces.

The downpour sluiced over the hard-packed soil, scrubbing down the battlefield with a meteorological mop. And through the curtains of water we could see the cubes sitting, immobile, impervious to the pounding goose-drownder I suddenly felt sure that they had caused.

The rain was brief. The clouds thinned, the sun broke through, the wet soil smelled fresh and good like it does after an April shower at home. In half an hour the sky was clear; just a nice, sunny early afternoon, peaceful and calm. We tracked around in the thin mud and debated.

"Should we go over to them?" Pegleg asked. "They're not in any hurry to come to us." He waved a hand at the line of cubes.

"Let's wait 'em out," I said. "Tell Johnny to keep the *Stardust* high. This business isn't over yet, I feel. Be a shame to spoil it. Lindy?"

"I feel," Lindy said gently, "like something nice is coming. It's almost like we're being invited to wait."

"Ursula?"

"Wish they hadn't smashed my

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easel," Ursula said. "Going to need it. Help me set up a frame on the side of the jeep, Roscoe. Can't miss this."

That settled it. We waited.

XIII

It was an hour, maybe, before it happened. Then suddenly they were all around us again. Not the line of cubes on the ridge. They didn't move. These around us were cubes we knew, individuals we recognized. The chalk white one, the rosy one of our first encounter, a strange, haunting lemon yellow, a flashing royal blue. The feel was a good feel, a happy, grateful feel, a genuinely *friendly* feel. Let Pegleg talk me no talk about these beings and friendship. They understood it. They *were* our friends.

They shifted and formed a pattern before us. It was an attention-holding, compelling sort of arrangement, yet simple and predictable. They were a checkerboard, aligned with orderly precision a number of rows deep. There were not many of them, perhaps no more than fifty or sixty, covering not a quarter of an acre. As Lindy expressed it later, "Just a few friends of the family." But I realized after a moment, with a little throb of dismay, that the black cube was missing. Many had been destroyed in the battle, that I knew. But reassurance came immediately. Although it wasn't present, I knew it still existed.

The checkerboard of cubes sat in friendly immobility. I got the impression that the color arrangement was not random, but was an artistic blend deliberately achieved. Certainly it was strangely soothing and satisfying. The feel was the same as I sometimes get when soft music and my mood come together. A rare, pleasing, relaxing sort of feel.

Ursula painted. Lindy's tape camera whispered.

The black cube appeared almost directly before us, and beside it, a cube-span away, the delicate cream-ivory cube sat daintily.

There was nothing to tell us what would happen. We knew, though. Honorable fusion. Two may become one. And when the two become one, then the two no longer exist, and the one is a new one. And the new one, which has been two, may and will make others, small miniatures of itself, which will feed and grow and learn and enjoy. And, in their turn, fuse honorably.

One moment the two cubes sat before us and in strange gladness told us good-by. The next, they were gone, and in the space that had been between them a new cube glowed, an exquisite perfection of flashing oxblood, which hailed us with a joyous greeting. You think I'm using words. You think I'm fooling. But I'm not. It was like that.

Ursula's brush strokes had stopped, and her strange eyes stared in awe. Lindy, her tape camera forgotten, sobbed softly. And the new cube, which never had been before, spoke to us more perfectly, more plainly, than any ever had. It was a blend, not only of mass and of color and of friendship, but of learning. Its

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speech was in the air, as though it were visible words, and as words the meaning came to me.

"Permanent disintegration came to many, so space was made available. Two wished honorable fusion, and because there was space, it became possible. So I now exist.

"You are different. You are wise. You are my friends. While you stay, I will always be near. We go now, all, but when you want us, we will come. We will know.

"Two wished you to be near when fusion came. It is the most important of all things to happen. It seems, I cannot quite understand how, that it also happens to you. So you know."

The indescribable oxblood cube, quite the most perfect thing in a race of perfection, sat for a brief while longer. The good feeling that came from it and from its fellows welled up around us in the now familiar waves. Then suddenly, as always, they were gone. The landscape was empty. The waves rolled in to the sandy beaches, a gentle breeze blew, and that was all.

But it was not all for me. I glowed like the cube.

"A zygote!" I said. "A cubic zygote! We speak of two becoming one, but they really mean it."

Lindy dabbed at the tears on her face. "It was lovely," she sniffed and blew her nose. Then she smiled at me. "I always cry at weddings."

Pegleg grunted something unintelligible. He turned to contact the *Stardust*, which would soon be dropping down. Ursula painted again.

I put my arm around Lindy and took over the mopping job.

"You can cry at your own wedding, and soon," I told her. "We can't become one as they did, but—"

Lindy put her fingers over my lips.

"Don't spoil it," she said softly. "We can try!" END

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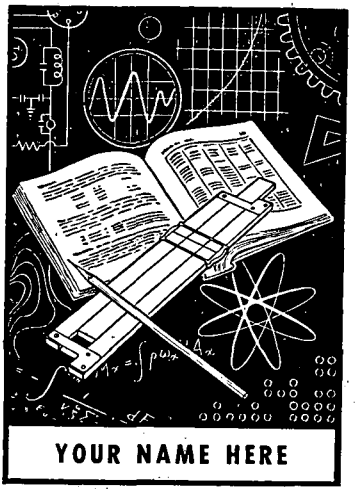

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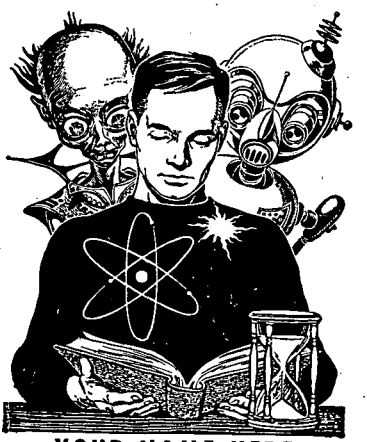

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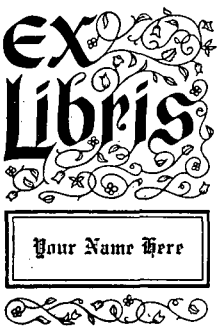

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